SEQUENCE LISTING

<110> University of Florida and Centre de Coopération Internationale
      en Recherche Agronomique pour le Développement (CIRAD)

<120> Complete Biosynthetic Gene Set for Synthesis of Polyketide
      Antibiotics, Including the Albicidin Family, Resistance Genes, and
      Uses Thereof

<130> UF-398XC1

<150> US 60/419,463
<151> 2002-10-18

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<170> PatentIn version 3.1

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<211>   267
<212>   DNA
<213>   Xanthomonas albilineans

<400>   4

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ttccgaggcg acgtacttgc tcttccactg gtaataggtc gccgtgctga tgccgacttg     180
gcgacagatg tctttgactg gaacgcctgc gtcggcctgc ttgagcgtgg cgatgatctg     240
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<210>   5
<211>   1755
<212>   DNA
<213>   Xanthomonas albilineans

<400>   5

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<210> 6
<211> 1491
<212> DNA
<213> Xanthomonas albilineans

<400> 6

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<210> 7
<211> 954
<212> DNA
<213> Xanthomonas albilineans

<400> 7

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<210>   8
<211>   1356
<212>   DNA
<213>   Xanthomonas albilineans


<400>   8


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<210>   9
<211>   948
<212>   DNA
<213>   Xanthomonas albilineans


<400>   9


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<210> 10
<211> 252
<212> DNA
<213> Xanthomonas albilineans

<400> 10

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ctcgaacgtc at                                                         252
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<210> 11
<211> 2151
<212> DNA
<213> Xanthomonas albilineans

<400> 11

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<213>   Xanthomonas albilineans

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gcataa                                                              2826
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<210> 24
<211> 837
<212> DNA
<213> Xanthomonas albilineans

<400> 24

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ccggaactgc aggcagccgc gcgcagtgcc caccgccatc tgctcgacga cggcacggcg    180
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tcccattgcg aggactacgc ggccgccatc gccatggcgg ccggcacccg ccacggcgtg    480
ggcatcgatc tggaacgacc aatcacaccc gcggcgcgcg cggcgttgct gagcatcgca    540
atcgatgccg acgaagccgc tcgtctggca aaggcggcag acgcgcagtg gccgcaagac    600
ctgctgctga ccgcactatt ttcggccaag gaaagcctgt tcaaagccgc ctacagcgcg    660
gtcggacgct acttcgactt cagcgcggca cgcctgtgcg gcatcgacct ggcacggcaa    720
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<210> 25
<211> 1905
<212> DNA
<213> Xanthomonas albilineans

<400> 25

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aatgcctccg acgcggccga caaactgcgc ttcgaggcac tggtcaagcc ggaacttctg    180
gacggcgatg cgcaactgcg catccgcatc ggcttcgaca aggacgccgg caccgtcacc    240
atcgacgaca acggcatcgg catgagccgc gaggagatcg tcgcgcacct gggcaccatc    300
gccaaatccg gcacctccga tttcctcaag catctgtccg gcgatcagaa gaaggattcg    360
cacctgatcg gccagttcgg tgtcggcttc tacagtgcct tcatcgtcgc cgatcaagtg    420
gacgtgtaca gccgtcgcgc cgggctgccg gccagcgacg gcgtacactg gtcctcgcgt    480
ggcgaaggcg agttcgaggt cgccaccatc gacaagcccg agcgcggcac ccgcatcgtg    540
ctgcacttga aggaggaaga gaaaggcttc gccgacggtt ggaagttgcg cagcatcgtg    600
cgcaagtact ccgaccacat cgccttgccg atcgagctaa tcaaggaaca ctacggcgag    660
gacaaggaca agccggaaac ccccgagtgg gagaccgtca atcgcgccag cgcgctgtgg    720
acacggccgc gcaccgagat caaggacgag gaataccaag aactgtacaa gcacattgcc    780
cacgaccacg aaaacccggt ggcgtggagc cataacaagg tcgaaggcaa actggaatac    840
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acctcgctgc tgtacctgcc cggccgcgcc ccgttcgacc tgtaccagcg cgatgcctcg    900
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ccgctgtacc tgcgcttcat caagggcatc gtcgattcca gcgacctgcc gctgaacgtc   1020
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cgcgcactgg acatgctgga aaagctcgcc aaagacgatc ccgaacgcta caagggcgtg   1140
tggaagaact tcggccaggt gctgaaggaa ggtccggccc aggacttcgg caaccgcgaa   1200
aagatcgccg gcctgctgcg cttcgcgtcc acccacagcg gcgacgacgc ccagaacgtg   1260
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agcgaagaag aaaagcaggc gcaggaagaa gccgccaagg ccaagcaagg gctggccgag   1560
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catccgctga tcgagaaact ggatgcggaa cccgatgtcg atcgtttcgg tgatctggcg   1800
cgggtgctgt cgatcaggc cgcgctggcc gccggcgaca gcctcaagga cccggccgcc   1860
tacgtgcgtc ggctcaacaa gctgttgctg gagctgtcgg cgtaa                   1905
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<210> 26
<211> 6879
<212> PRT
<213> Xanthomonas albilineans

<400> 26

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Gly Val Leu Leu Gly Val Thr Ala Arg Ala Ala Ile Pro Asn Lys Ala
            20   25   30

Gly Met Arg Arg Ala Trp Pro Pro Phe Pro Gln Ala Cys Cys Arg Ser
        35   40   45

Ile Ala Tyr Leu Met Gln Arg Ser Pro Met Ser Pro Leu Gln Gln Thr
    50   55   60

Leu Leu Thr Arg Leu Ala Ser Ala Ala Ala Ser Arg Thr Met Ile Glu
65   70   75   80

Phe Pro Arg Pro Glu His Ala Ser Pro Gln Cys Cys Asp Asp Ala Glu
                85   90   95

Leu Ala Arg Leu Ile Val Gln Leu Ser Ala Gly Leu Gln Pro Leu Ala
            100   105   110

Met Pro Gly Thr Tyr Val Ile Ile Ala Ala Pro His Gly Gly Leu Phe
        115   120   125

Ala Ala Ala Leu Leu Ala Cys Leu His Ala Asn Leu Val Ala Val Pro
    130   135   140

Phe Pro Leu Asp Val Ala Gln Pro Asn Glu Arg Glu Gln Ala Arg Leu
145   150   155   160

Glu Thr Ile His Ala Gln Leu Met Glu His Gly Asn Val Ala Val Leu
                165   170   175

Leu Asp Asp Val Ala Asp Arg Ser Ala Phe Ala Arg Met Ala His Ala

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              180                 185                 190

Ala Gly Thr Phe Leu Ala Thr Phe Ala Asp Leu Lys Arg Glu Ser Thr
        195                 200                 205

Ser Ala Ser Leu Cys Pro Ala Ser Pro Ser Asp Ala Ala Leu Leu Leu
        210                 215                 220

Phe Thr Ser Gly Ser Ser Gly Glu Ser Lys Gly Ile Leu Leu Ser His
225                 230                 235                 240

Arg Asn Leu His His Gln Ile Gln Ala Gly Ile Arg Gln Trp Ser Leu
                245                 250                 255

Asp Glu His Ser His Val Val Thr Trp Leu Ser Pro Ala His Asn Phe
                260                 265                 270

Gly Leu His Phe Gly Leu Leu Ala Pro Trp Phe Ser Gly Ala Thr Val
            275                 280                 285

Ser Phe Ile His Pro His Ser Tyr Met Lys Arg Pro Gly Phe Trp Leu
        290                 295                 300

Glu Thr Val Ala Ala Arg Asp Ala Thr His Met Ala Ala Pro Asn Phe
305                 310                 315                 320

Ala Phe Asp Tyr Cys Cys Asp Trp Val Met Val Glu Gln Leu Pro Pro
                325                 330                 335

Ser Ala Leu Ser Thr Leu Thr His Ile Val Cys Gly Gly Glu Pro Val
                340                 345                 350

Arg Ala Ser Thr Met Gln Arg Phe Phe Glu Lys Phe Ala Gly Leu Gly
                355                 360                 365

Ala Arg Thr Gln Thr Phe Met Pro His Phe Gly Leu Ser Glu Thr Gly
        370                 375                 380

Ala Leu Ser Thr Leu Asp Glu Ala Pro Gln Gln Arg Val Leu Glu Leu
385                 390                 395                 400

Asp Ala Asp Ala Leu Asn Lys Arg Lys Arg Val Ala Ala Gly Ala Ser
                405                 410                 415

Gln Ala Arg Val Thr Val Leu Asn Cys Gly Ala Val Asp Gln Asp Val
                420                 425                 430

Glu Leu Arg Ile Val Cys Pro Glu Gly Glu Thr Leu Cys Arg Pro Asp
                435                 440                 445

Glu Ile Gly Glu Ile Trp Val Lys Ser Pro Ala Ile Ala Arg Gly Tyr
        450                 455                 460

Leu Phe Ala Lys Pro Ala Asp Gln Arg Gln Phe Asn Cys Ser Ile Arg
465                 470                 475                 480

His Thr Asp Asp Ser Gly Tyr Phe Arg Thr Gly Asp Leu Gly Phe Ile
                485                 490                 495

Ala Asp Gly Cys Leu Tyr Val Thr Gly Arg Val Lys Glu Val Leu Ile
            500                 505                 510
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Ile Arg Gly Lys Asn His Tyr Pro Ala His Ile Glu Ala Ser Ile Ala
        515                 520                 525

Ala Thr Ala Ser Pro Gly Ala Leu Met Pro Val Val Phe Ser Ile Glu
    530                 535                 540

Arg Gln Asp Glu Glu Arg Val Ala Ala Val Ile Ala Val Asn His Pro
545                 550                 555                 560

Trp Thr Pro Ala Ala Cys Ala Ala Gln Ala His Lys Ile Arg Gln Gln
                565   ,             570                 575

Val Ala Asp Gln His Gly Val Ala Leu Ala Glu Leu Ala Phe Ala Glu
        580                 585                 590

His Arg His Val Phe Gly Thr Tyr Pro Gly Lys Leu Lys Arg Arg Leu
        595                 600                 605

Val Lys Glu Ala Tyr Val Asn Gly Gln Leu Pro Leu Leu Trp His Glu
    610                 615                 620

Gly Lys Asn Arg Asp Val Pro Ala Ala Ala Asp Asp Arg Gln Ala
625                 630                 635                 640

Gln His Val Ala Asp Leu Cys Arg Lys Val Phe Leu Pro Val Leu Gly
                645                 650                 655

Val Ala Pro Pro His Ala Gln Trp Pro Leu Cys Glu Leu Ala Leu Asp
            660                 665                 670

Ser Leu Gln Cys Val Arg Leu Ala Gly Ala Ile Glu Glu Cys Tyr Gly
        675                 680                 685

Val Pro Phe Glu Pro Thr Leu Leu Phe Lys Leu Glu Thr Val Gly Ala
    690                 695                 700

Ile Ala Glu Tyr Val Leu Ala His Gly Arg Gln Ala Pro Thr Pro Thr
705                 710                 715                 720

Arg Ala Pro Val Ala Ser Thr Thr Cys Ser Glu Glu Pro Ile Ala Ile
            725                 730                 735

Val Ala Met His Cys Glu Val Pro Gly Ala Gly Glu Asn Thr Glu Ala
            740                 745                 750

Leu Trp Ser Phe Leu Arg Ser Asp Val Asn Ala Ile Arg Pro Ile Glu
        755                 760                 765

Ser Thr Arg Pro Asp Leu Trp Ala Ala Met Arg Ala Tyr Pro Gly Leu
    770                 775                 780

Ala Gly Glu Gln Leu Pro Arg Tyr Ala Gly Phe Leu Asp Asp Val Asp
785                 790                 795                 800

Ala Phe Asp Ala Ala Phe Phe Gly Ile Ser Arg Arg Glu Ala Glu Cys
            805                 810                 815

Met Asp Pro Gln Gln Arg Lys Val Leu Glu Met Val Trp Lys Leu Ile
            820                 825                 830
Glu Gln Ala Gly His Asp Pro Leu Ser Trp Gly Gly Gln Pro Val Gly
```

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           835                    840                    845
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Leu Phe Val Gly Ala His Thr Ser Asp Tyr Gly Glu Leu Leu Ala Ser
    850   855   860

Gln Pro Gln Leu Met Ala Gln Cys Gly Ala Tyr Ile Asp Ser Gly Ser
865   870   875   880

His Leu Thr Met Ile Pro Asn Arg Ala Ser Arg Trp Phe Asn Phe Thr
            885   890   895

Gly Pro Ser Glu Val Ile Asn Ser Ala Cys Ser Ser Ser Leu Val Ala
        900   905   910

Leu His Arg Ala Val Gln Ser Leu Arg Gln Gly Glu Ser Ser Val Ala
        915   920   925

Leu Val Leu Gly Val Asn Leu Ile Leu Ala Pro Lys Val Leu Leu Ala
    930   935   940

Ser Ala Ser Ala Gly Met Leu Ser Pro Asp Gly Arg Cys Lys Thr Leu
945   950   955   960

Asp Ala Ala Ala Asp Gly Phe Val Arg Ser Glu Gly Ile Ala Gly Val
            965   970   975

Ile Leu Lys Pro Leu Ala Gln Ala Leu Ala Asp Gly Asp Arg Val Tyr
        980   985   990

Gly Leu Val Arg Gly Val Ala Val Asn His Gly Gly Arg Ser Asn Ser
    995   1000   1005

Leu Arg Ala Pro Asn Val Asn Ala Gln Arg Gln Leu Leu Ile Arg
    1010   1015   1020

Thr Tyr Gln Glu Ala Gly Val Glu Pro Ala Ser Val Gly Tyr Val
    1025   1030   1035

Glu Leu His Gly Thr Gly Thr Ser Leu Gly Asp Pro Ile Glu Ile
    1040   1045   1050

Gln Ala Leu Lys Glu Ala Phe Ile Ala Leu Gly Ala Gln Ala Ala
    1055   1060   1065

Pro Ser Asn Cys Gly Ile Gly Ser Val Lys Ser Ala Leu Gly His
    1070   1075   1080

Leu Glu Ala Ala Ala Gly Leu Thr Gly Leu Ile Lys Val Leu Leu
    1085   1090   1095

Met Leu Lys His Gly Glu Gln Ala Gly Thr Arg His Phe Ser Thr
    1100   1105   1110

Leu Asn Pro Leu Ile Asp Leu Arg Gly Thr Ser Phe Glu Val Val
    1115   1120   1125

Ala Gln His Arg Ala Trp Pro Ser Gln Val Gly Ile His Gly Thr
    1130   1135   1140

Leu Leu Pro Arg Arg Ala Gly Ile Ser Ser Phe Gly Phe Gly Gly
    1145   1150   1155

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Ala Asn  Ala His Ala Ile Val  Glu Glu His Val Ile  Ala Thr Pro
    1160                1165            1170

Pro Ser  Thr Ser Ser Ala Gly  Gly Pro Val Gly Ile  Val Leu Ser
    1175                1180            1185

Ala Gly  Ser Glu Ala Val Leu  Arg Gln Gln Val Leu  Ala Leu Ser
    1190                1195            1200

Ala Trp  Leu Arg Gln Gln Ser  Pro Thr Pro Ala Gln  Met Ile Asp
    1205                1210            1215

Val Ala  Tyr Thr Leu Gln Val  Gly Arg Ala Ala Leu  Ser His Arg
    1220                1225            1230

Leu Ala  Phe Ser Ala Thr Asp  Ala Glu Gln Ala Leu  Ala Arg Leu
    1235                1240            1245

Glu Gly  Arg Leu Ala Gly Val  Met Asp Ala Glu Val  His His Gly
    1250                1255            1260

Val Val  Asp Ala Ala Ala Thr  Ala Pro Glu His Gly  Arg Gln Thr
    1265                1270            1275

Arg Glu  Gly Leu Ala Gly Leu  Leu Arg Ala Trp Thr  Gln Gly Val
    1280                1285            1290

Arg Val  Asp Trp Ser Ala Leu  Tyr Gly Ile Gln Arg  Pro Gln Arg
    1295                1300            1305
Val Ser  Leu Pro Val Tyr Pro  Phe Ala Arg Glu Arg  Tyr Trp Leu
    1310                1315            1320

Pro Gly  Gln Ala Met His Ala  Ala Ala Asp Ala His  Pro Met Leu
    1325                1330            1335

Gln Leu  Leu His Ala Asn Ala  Lys Leu His Arg Tyr  Ala Leu Arg
    1340                1345            1350

Arg Ser  Gly Cys Ala Ser Phe  Leu Val Asp His Cys  Val Asp Gly
    1355                1360            1365

Arg Gln  Val Leu Pro Ala Ala  Val Gln Leu Glu Leu  Val Arg Ala
    1370                1375            1380

Val Ala  Gln Arg Val Met Ala  Gln Asp Glu Gly Cys  Ile Glu Leu
    1385                1390            1395

Ala Gln  Val Ala Phe Leu His  Pro Leu Met Met Glu  Glu Thr Glu
    1400                1405            1410

Leu Glu  Val Glu Ile Glu Leu  Ser Lys Ser Asp Gln  Asp Glu Phe
    1415                1420            1425

Asp Phe  Gln Leu His Asp Ala  His Arg Gln Gln Val  Phe Ser Gln
    1430                1435            1440

Gly His  Val Arg Arg Arg Val  Tyr Thr Ala Thr Pro  Arg Leu Asp
    1445                1450            1455

Leu Ala  Gln Leu Gln Lys Leu  Cys Ala Glu Arg Val  Leu Ser Gly
```

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            1460                  1465                      1470

Glu Asp  Cys Tyr Ala His Phe  Thr Ala Cys Gly Leu  Gln Leu Gly
    1475                 1480                  1485

Asp Arg  Leu Lys Ser Val Gln  Ser Ile Gly Cys Gly  Arg Asn Gly
    1490                 1495                  1500

Glu Gly  Glu Pro Ile Ala Leu  Gly Val Leu Arg Leu  Pro Pro Ser
    1505                 1510                  1515

Ser Val  Glu Asp Ser His Val  Leu Pro Pro Ser Leu  Leu Asp Gly
    1520                 1525                  1530

Ala Leu  Gln Cys Ser Leu Gly  Leu Gln Arg Asp Val  Glu His Ile
    1535                 1540                  1545

Ala Met  Pro Tyr. Thr Leu Glu  Arg Met Thr Val His  Ala Pro Ile
    1550                 1555                  1560

Pro Pro  Glu Ala Trp Val Leu  Leu Arg His Gly His  Ala Ala Arg
    1565                 1570                  1575

Gln Ser  Leu Asp Ile Asp Leu  Leu Asp Ser Glu Gly  Arg Val Cys
    1580                 1585                  1590

Val Ser  Leu Gly Asn Tyr Thr  Gly Arg Ala Pro Lys  Ala Val Ser
    1595                 1600                  1605

Ala Val  Arg Ala Leu Val Leu  Ala Pro Val Trp Gln  Ala Leu Thr
    1610                 1615                  1620

Glu Thr  Ala Pro Ala Trp Pro  Asp Pro Ala Glu Arg  Ile Val Thr
    1625                 1630                  1635

Val Gly  Asp Asp Ala Trp Arg  Ser His Phe Gly Phe  Asp Glu Pro
    1640                 1645                  1650

Ala Leu  Ser Leu Glu Asp Ser  Val Glu Val Ile Ala  Thr Arg Leu
    1655                 1660                  1665

Gly Gln  Ser Gly Lys Phe Asp  His Leu Val Trp Ile  Val Pro Ile
    1670                 1675                  1680

Ala Glu  Ser Glu Thr Asp Ile  Ala Ala Gln Gly Ser  Ala Ala Ile
    1685                 1690                  1695

Ala Gly  Phe Arg Leu Val Lys  Ala Leu Leu Ala Leu  Gly Tyr Ala
    1700                 1705                  1710

His Arg  Pro Leu Gly Leu Thr  Val Leu Thr Arg Gln  Ala Leu Thr
    1715                 1720                  1725

Arg Gln  Pro Ser His Ala Ala  Val His Gly Leu Ile  Gly Thr Leu
    1730                 1735                  1740

Ala Lys  Glu Tyr Cys Asn Trp  Lys Ile Arg Leu Leu  Asp Leu Pro
    1745                 1750                  1755

Ser Val  Lys Ser Trp Pro Gln  Trp Glu Gln Leu Arg  Ser Leu Pro
    1760                 1765                  1770
```

Trp His Ala Gln Gly Glu Ala Leu Ile Gly Arg Gly Thr Cys Trp
    1775   1780   1785

Tyr Arg Arg Gln Leu Cys Glu Val Leu Pro Leu Pro Ser Leu Glu
    1790   1795   1800

Pro Pro Pro Tyr Arg Val Gly Gly Val Tyr Val Val Ile Gly Gly
    1805   1810   1815

Ala Gly Gly Leu Gly Glu Val Leu Ser Glu His Leu Ile Arg Thr
    1820   1825   1830

Tyr Asp Ala Gln Leu Ile Trp Ile Gly Arg Arg Val Leu Asp Glu
    1835   1840   1845

Gly Ile Ala Arg Lys Gln Thr Arg Leu Ala Ser Leu Gly Arg Ala
    1850   1855   1860

Pro His Tyr Ile Ser Ala Asp Ala Ser Asp Pro Ala Ala Leu Gln
    1865   1870   1875

Ala Ala His Asn Glu Ile Val Ala Leu His Gly Gln Pro His Gly
    1880   1885   1890

Leu Ile Leu Ser Asn Ile Val Leu Lys Asp Ala Ser Leu Ala Arg
    1895   1900   1905

Met Glu Glu Ala Asp Phe Arg Asp Val Leu Ala Ala Lys Leu Asp
    1910   1915   1920

Val Ser Val Cys Ala Ala Gln Val Phe Gly Thr Ala Pro Leu Asp
    1925   1930   1935

Phe Val Leu Phe Phe Ser Ser Ile Gln Ser Thr Thr Lys Ala Ala
    1940   1945   1950

Gly Gln Gly Asn Tyr Ala Ala Gly Cys Cys Tyr Val Asp Ala Phe
    1955   1960   1965

Gly Glu Leu Trp Ala Arg Arg Gly Leu Arg Val Lys Thr Ile Asn
    1970   1975   1980

Trp Gly Tyr Trp Gly Ser Val Gly Val Val Ala Gly Glu Asp Tyr
    1985   1990   1995

Arg Arg Arg Met Ala Gln Lys His Met Ala Ser Ile Glu Gly Ala
    2000   2005   2010

Glu Ala Met Gln Val Leu Ser Gln Leu Leu Cys Ala Pro Leu Gln
    2015   2020   2025

Arg Leu Ala Tyr Val Lys Ile Asp Asp Ala Asn Ala Met Arg Ala
    2030   2035   2040

Leu Gly Val Val Glu Asp Glu Ser Val Gln Ile Pro Val His Ala
    2045   2050   2055

Pro Ala Glu Pro Pro Arg Gly Gln Pro Gly Pro Val Val Glu Leu
    2060   2065   2070

Ser Val Asn Leu Asp Ala Arg Arg Glu Arg Glu Thr Leu Leu Ala
    2075   2080   2085

Ala Trp Leu Leu Glu Leu Ile Glu Gln Leu Gly Gly Phe Pro Pro
    2090   2095   2100

Ala Ser Phe Asp Ile Ala Thr Leu Ala Gln Arg Leu His Ile Val
    2105   2110   2115

Pro Ala Tyr Arg Ser Trp Leu Glu His Ser Val Arg Met Leu Gly
    2120   2125   2130

Val Tyr Gly Tyr Leu Arg Ala Thr Gly Glu Ser Arg Phe Glu Leu
    2135   2140   2145

Ala Asp Lys Pro Pro Asp Asp Ala Arg Gly Ala Trp Asn Ala His
    2150   2155   2160

Val His Glu Ala Ser Val Glu Ala Gly Glu Glu Ala Gln Arg Arg
    2165   2170   2175

Leu Leu Asp Arg Cys Met Arg Ala Leu Pro Ala Val Leu Arg Gly
    2180   2185   2190

Glu Arg Lys Ala Thr Glu Leu Leu Phe Pro Glu Gly Ser Met Ala
    2195   2200   2205

Trp Val Glu Gly Ile Tyr Gln Asn Asn Pro Leu Ala Asp Tyr Phe
    2210   2215   2220

Asn Ala Gln Leu Val Thr Arg Leu Ile Ala Tyr Leu Arg Arg Arg
    2225   2230   2235

Leu Glu Ser Thr Pro Thr Ala Arg Leu Lys Leu Cys Glu Ile Gly
    2240   2245   2250

Ala Gly Ser Gly Gly Thr Thr Ala Ser Val Leu Gln Gln Leu Gln
    2255   2260   2265

Ala Tyr Gly Glu His Ile Glu Glu Tyr Leu Tyr Thr Asp Leu Ser
    2270   2275   2280

Pro Val Phe Leu His His Ala Glu Lys His Tyr Gln Pro Arg Ala
    2285   2290   2295

Pro Tyr Leu Arg Thr Ala Cys Phe Asp Val Ala Arg Ala Pro Thr
    2300   2305   2310

Ala Gln Ala Leu Glu Ser Gly Gly Tyr Asp Val Val Ile Ala Ala
    2315   2320   2325

Asn Val Leu His Ala Thr Arg Asp Ile Ala Lys Thr Leu Arg Asn
    2330   2335   2340

Ala Lys Ala Leu Leu Lys Pro Gly Gly Leu Leu Leu Leu Asn Glu
    2345   2350   2355

Val Ile Glu Arg Ser Leu Val Leu His Leu Thr Phe Gly Leu Leu
    2360   2365   2370

Glu Ser Trp Trp Leu Pro Gln Asp Lys Ile Leu Arg Leu Ala Gly

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        2375                      2380                      2385
Ser Pro  Leu Leu Ala Cys Ala  Thr Trp Arg Ser Leu  Leu Glu Ala
    2390                 2395                 2400

Glu Gly  Phe Ala Gly Leu Ser  Val His Arg Ala Gln  Pro Asp Ala
    2405                 2410                 2415

Gly Gln  Ala Ile Ile Cys Ala  Tyr Ser Asp Gly Ile  Val Arg Gln
    2420                 2425                 2430

Ala Ser  Thr Ile Glu Val Ala  Arg Asn Glu Lys Val  Thr Val Pro
    2435                 2440                 2445

Ser Gln  Pro Ala Glu Ala Gly  Glu Ser Pro Leu Asp  Leu Val Lys
    2450                 2455                 2460

Lys Leu  Leu Gly Arg Ile Leu  Lys Met Asp Pro Ala  Thr Leu Asp
    2465                 2470                 2475

Thr Ser  His Pro Leu Glu Tyr  Tyr Gly Val Asp Ser  Ile Val Ala
    2480                 2485                 2490

Ile Glu  Leu Ala Met Ala Leu  Arg Glu Thr Phe Pro  Gly Phe Glu
    2495                 2500                 2505

Val Ser  Glu Leu Phe Glu Thr  Gln Ser Ile Asp Thr  Leu Leu Gly
    2510                 2515                 2520

Ser Leu  Glu Gln Ala Pro Leu  Leu Ala Thr Leu Thr  Ala Pro Pro
    2525                 2530                 2535

Gln Gln  Asp Met Leu Gln Gln  Leu Lys Gln Leu Leu  Ala Arg Thr
    2540                 2545                 2550

Leu Lys  Leu Asp Ile Thr Gln  Ile Asp Thr Ser Lys  Thr Leu Glu
    2555                 2560                 2565

Ser Tyr  Gly Val Asp Ser Ile  Val Ile Ile Glu Leu  Ala Asn Ala
    2570                 2575                 2580

Leu Arg  Glu Arg Tyr Pro Ser  Leu Asp Ala Ser Gln  Leu Met Glu
    2585                 2590                 2595

Thr Leu  Ser Ile Asp Arg Leu  Val Ala Gln Trp Gln  Ala Thr Glu
    2600                 2605                 2610

Pro Ala  Val Pro Ala Glu Pro  Thr Ala Glu Pro Pro  Val Ala Asp
    2615                 2620                 2625

Glu Asp  Ala Ala Ala Ile Ile  Gly Leu Ala Gly Arg  Phe Pro Gly
    2630                 2635                 2640

Ala Asp  Thr Leu Glu Glu Phe  Trp Asn Asn Leu Arg  Asn Gly Gln
    2645                 2650                 2655

Ser Ser  Met Gly Glu Val Pro  Gly Glu Arg Trp Asp  His Gln His
    2660                 2665                 2670

Tyr Phe  Asp Ser Glu Arg Gln  Ala Pro Gly Lys Thr  Tyr Ser Arg
    2675                 2680                 2685
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Trp Gly  Ala Phe Leu Arg Asp  Ile Asp Gly Phe Asp  Ala Ala Phe
    2690             2695             2700

Phe Glu  Trp Pro Asp Ser Val  Ala Leu Glu Ser Asp  Pro Gln Ala
    2705             2710             2715

Arg Ile  Phe Leu Glu Gln Ala  Tyr Ala Gly Ile Glu  Asp Ala Gly
    2720             2725             2730

Tyr Thr  Pro Gly Ser Leu Ser  Lys Ser Gln Arg Val  Gly Val Phe
    2735             2740             2745

Val Gly  Val Met Asn Gly Tyr  Tyr Ser Gly Gly Ala  Arg Phe Trp
    2750             2755             2760

Gln Ile  Ala Asn Arg Val Ser  Tyr Gln Phe Asp Phe  Arg Gly Pro
    2765             2770             2775

Ser Leu  Ala Val Asp Thr Ala  Cys Ser Ala Ser Leu  Thr Ala Ile
    2780             2785             2790

His Leu  Ala Leu Glu Ser Leu  Arg Ser Gly Ser Cys  Glu Val Ala
    2795             2800             2805

Leu Ala  Gly Gly Val Asn Leu  Leu Val Asp Pro Gln  Gln Tyr Leu
    2810             2815             2820

Asn Leu  Ala Gly Ala Ala Met  Leu Ser Ala Gly Ala  Ser Cys Arg
    2825             2830             2835

Pro Phe  Gly Glu Ala Ala Asp  Gly Phe Val Ala Gly  Glu Ala Cys
    2840             2845             2850

Gly Val  Val Leu Leu Lys Pro  Leu Lys Gln Ala Arg  Ala Asp Gly
    2855             2860             2865

Asp Val  Ile His Ala Val Ile  Arg Gly Ser Met Ile  Asn Ala Gly
    2870             2875             2880

Gly His  Thr Ser Ala Phe Ser  Ser Pro Asn Pro Ala  Ala Gln Ala
    2885             2890             2895

Glu Val  Val Arg Gln Ala Leu  Gln Arg Ala Gly Val  Ala Pro Asp
    2900             2905             2910

Ser Ile  Ser Tyr Ile Glu Ala  His Gly Thr Gly Thr  Val Leu Gly
    2915             2920             2925

Asp Ala  Val Glu Leu Gly Ala  Leu Asn Lys Val Phe  Asp Lys Arg
    2930             2935             2940

Ala Ala  Pro Cys Pro Ile Gly  Ser Leu Lys Ala Asn  Ile Gly His
    2945             2950             2955

Ala Glu  Ser Ala Ala Gly Ile  Ala Gly Leu Ala Lys  Leu Val Leu
    2960             2965             2970

Gln Phe  Arg His Gly Glu Leu  Val Pro Ser Leu Asn  Ala Phe Pro
    2975             2980             2985
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Leu Asn Pro Tyr Ile Glu Phe Gly Arg Phe Gln Val Gln Gln Gln
    2990   2995   3000

Pro Ala Pro Trp Pro Arg Arg Gly Ala Gln Pro Arg Arg Ala Gly
    3005   3010   3015

Leu Ser Ala Phe Gly Ala Gly Gly Ser Asn Ala His Leu Val Val
    3020   3025   3030

Glu Glu Ala Pro Ala Met Ala Pro Gly Val Ser Ile Ser Ala Ser
    3035   3040   3045

Ser Pro Ala Leu Ile Val Leu Ser Ala Arg Thr Leu Pro Ala Leu
    3050   3055   3060

Gln Gln Arg Ala Arg Asp Leu Leu Val Trp Met Gln Ala Arg Gln
    3065   3070   3075

Val Asp Asp Val Met Leu Ala Asp Val Ala Tyr Thr Leu His Leu
    3080   3085   3090

Gly Arg Val Ala Met Glu Gln Arg Leu Ala Phe Thr Ala Gly Ser
    3095   3100   3105

Ala Ala Glu Leu Ser Glu Lys Leu Gln Ala Tyr Leu Gly His Ala
    3110   3115   3120

Ile Arg Ala Asp Ile Tyr Leu Ser Glu Asp Thr Pro Gly Lys Pro
    3125   3130   3135

Ala Gly Ala Pro Ile Val Ala Glu Glu Asp Leu Leu Thr Leu Met
    3140   3145   3150

Asp Ala Trp Ile Glu Lys Gly Gln Tyr Gly Arg Leu Leu Glu Tyr
    3155   3160   3165

Trp Thr Lys Gly Gln Pro Ile Asp Trp Asn Lys Leu Tyr Trp Arg
    3170   3175   3180

Lys Leu Tyr Ala Asp Gly Arg Pro Arg Arg Ile Ser Leu Pro Thr
    3185   3190   3195

Tyr Pro Phe Glu His Arg Arg Tyr Trp Gln Thr Pro Val Pro Gly
    3200   3205   3210

Glu Arg Ser Leu His Ala Thr Ala Pro Ala Thr Arg Glu Thr Val
    3215   3220   3225

Ala Val Gly Ala Met Pro Asp Pro Ala Gly Ala Thr Val Gln Ala
    3230   3235   3240

Arg Leu Cys Ala Leu Cys Gln Val Leu Leu Gly Lys Pro Val Thr
    3245   3250   3255

Ala Gln Met Asp Phe Phe Ala Val Gly Gly His Ser Val Leu Ala
    3260   3265   3270

Ile Gln Leu Val Ser Arg Ile Arg Lys Ser Phe Gly Val Glu Tyr
    3275   3280   3285

Pro Val Ser Ala Leu Phe Glu Ser Ala Leu Leu Ser Asp Met Ala

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            3290                    3295                    3300

Arg Gln  Ile Glu Gln Leu Arg  Val Asn Gly Val Ala  Lys Arg Met
    3305                3310                3315

Pro Ala  Leu Leu Pro Ala Gly  Arg Val Gly Ala Ile  Pro Ala Thr
    3320                3325                3330

Tyr Ala  Gln Glu Arg Leu Trp  Leu Val His Glu His  Met Ser Glu
    3335                3340                3345

Gln Arg  Ser Ser Tyr Asn Ile  Thr Phe Ala Met His  Phe Arg Gly
    3350                3355                3360

Val Asp  Phe Arg Ala Glu Ala  Met Arg Ala Ala Leu  Asn Ala Leu
    3365                3370                3375

Val Val  Arg His Glu Val Leu  Arg Thr Arg Phe Leu  Ser Glu Asp
    3380                3385                3390

Gly Gln  Leu Gln Gln Val Ile  Ala Ala Ser Leu Thr  Leu Glu Val
    3395                3400                3405

Pro Val  Arg Glu Met Ser Val  Glu Glu Val Asp Leu  Leu Leu Ala
    3410                3415                3420

Ala Ser  Thr Arg Glu Thr Phe  Asp Leu Arg Gln Gly  Pro Leu Phe
    3425                3430                3435

Lys Ala  Arg Ile Leu Arg Val  Ala Ala Asp His His  Val Val Leu
    3440                3445                3450

Ser Ser  Ile His His Ile Ile  Ser Asp Gly Trp Ser  Leu Gly Val
    3455                3460                3465

Phe Asn  Arg Asp Leu His Gln  Leu Tyr Glu Ala Cys  Leu Arg Gly
    3470                3475                3480

Thr Pro  Pro Thr Leu Pro Thr  Leu Ala Val Gln Tyr  Ala Asp Tyr
    3485                3490                3495

Ala Leu  Trp Gln Arg Gln Trp  Glu Leu Ala Ala Pro  Leu Ser Tyr
    3500                3505                3510

Trp Thr  Arg Ala Leu Glu Gly  Tyr Asp Asp Gly Leu  Asp Leu Pro
    3515                3520                3525

Tyr Asp  Arg Pro Arg Gly Ala  Thr Arg Ala Trp Arg  Ala Gly Leu
    3530                3535                3540

Val Lys  His Arg Tyr Pro Pro  Gln Leu Ala Gln Gln  Leu Ala Ala
    3545                3550                3555

Tyr Ser  Gln Gln Tyr Gln Ala  Thr Leu Phe Met Ser  Leu Leu Ala
    3560                3565                3570

Gly Leu  Ala Leu Val Leu Gly  Arg Tyr Ala Asp Arg  Lys Asp Val
    3575                3580                3585

Cys Ile  Gly Ala Thr Val Ser  Gly Arg Asp Gln Leu  Glu Leu Glu
    3590                3595                3600
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Glu Leu  Ile Gly Phe Phe Ile  Asn Ile Leu Pro Leu  Arg Val Asp
    3605             3610             3615

Leu Ser  Gly Asp Pro Cys Leu  Glu Glu Val Leu Leu  Arg Thr Arg
    3620             3625             3630

Gln Val  Val Leu Asp Gly Phe  Ala His Gln Ser Val  Pro Phe Glu
    3635             3640             3645

His Val  Leu Gln Ala Leu Arg  Arg Gln Arg Asp Ser  Ser Gln Ile
    3650             3655             3660

Pro Leu  Val Pro Val Met Leu  Arg His Gln Asn Phe  Pro Thr Gln
    3665             3670             3675

Glu Ile  Gly Asp Trp Pro Glu  Gly Val Arg Leu Thr  Gln Met Glu
    3680             3685             3690

Leu Gly  Leu Asp Arg Ser Thr  Pro Ser Glu Leu Asp  Trp Gln Phe
    3695             3700             3705

Tyr Gly  Asp Gly Ser Ser Leu  Glu Leu Thr Leu Glu  Tyr Ala Gln
    3710             3715             3720

Asp Leu  Phe Asp Glu Ala Thr  Val Arg Arg Met Ile  Ala His His
    3725             3730             3735

Gln Gln  Ala Leu Glu Ala Met  Val Ser Arg Pro Gln  Leu Arg Val
    3740             3745             3750

Gly Lys  Trp Asp Met Leu Thr  Ala Glu Glu Arg Arg  Leu Phe Ala
    3755             3760             3765

Ala Leu  Asn Ala Thr Gly Thr  Pro Arg Glu Trp Pro  Ser Leu Ala
    3770             3775             3780

Gln Gln  Phe Glu Arg Gln Ala  Gln Ala Thr Pro Gln  Ala Ile Ala
    3785             3790             3795

Cys Val  Ser Asp Gly Gln Ser  Trp Ser Tyr Ala Gln  Leu Glu Ala
    3800             3805             3810

Arg Ala  Asn Gln Leu Ala Gln  Ala Leu Arg Gly Gln  Gly Ala Gly
    3815             3820             3825

Arg Asp  Val Arg Val Ala Val  Gln Ser Ala Arg Thr  Pro Glu Leu
    3830             3835             3840

Leu Met  Ala Leu Leu Ala Ile  Phe Lys Ala Gly Ala  Cys Tyr Val
    3845             3850             3855

Pro Ile  Asp Pro Ala Tyr Pro  Ala Ala Tyr Arg Glu  Gln Ile Leu
    3860             3865             3870

Ala Glu  Val Gln Val Ser Ile  Val Leu Glu Gln Asp  Glu Leu Ala
    3875             3880             3885

Leu Asp  Glu Gln Gly Gln Phe  His Asn Pro Arg Trp  Arg Glu Gln
    3890             3895             3900
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Ala Pro   Thr Pro Leu Gly Leu   Arg Glu His Pro   Gly   Asp Leu Ala
    3905   3910   3915

Cys Val   Met Val Thr Ser Gly   Ser Thr Gly Arg   Pro   Lys Gly Val
    3920   3925   3930

Met Val   Pro Tyr Ala Gln Leu   Tyr Asn Trp Leu   His   Ala Gly Trp
    3935   3940   3945

Gln Arg   Ser Pro Phe Glu Ala   Gly Glu Arg Val   Leu   Gln Lys Thr
    3950   3955   3960

Ser Ile   Ala Phe Ala Val Ser   Val Lys Glu Leu   Leu   Ser Gly Leu
    3965   3970   3975

Leu Ala   Gly Val Glu Gln Val   Met Leu Pro Asp   Glu   Gln Val Lys
    3980   3985   3990

Asp Ser   Leu Ala Leu Ala Arg   Ala Ile Glu Gln   Trp   Gln Val Thr
    3995   4000   4005

Arg Leu   Tyr Leu Val Pro Ser   His Leu Gln Ala   Leu   Leu Asp Ala
    4010   4015   4020

Thr Gln   Gly Arg Asp Gly Leu   Leu His Ser Leu   Arg   His Val Val
    4025   4030   4035

Thr Ala   Gly Glu Ala Leu Pro   Ser Ala Val Arg   Glu   Thr Val Arg
    4040   4045   4050

Ala Arg   Leu Pro Gln Val Gln   Leu Trp Asn Asn   Tyr   Gly Cys Thr
    4055   4060   4065

Glu Leu   Asn Asp Ala Thr Tyr   His Arg Ser Asp   Thr   Val Ala Pro
    4070   4075   4080

Gly Thr   Phe Val Pro Ile Gly   Ala Pro Ile Ala   Asn   Thr Glu Val
    4085   4090   4095

Tyr Val   Leu Asp Arg Gln Leu   Arg Gln Val Pro   Ile   Gly Val Met
    4100   4105   4110

Gly Glu   Leu His Val His Ser   Val Gly Met Ala   Arg   Gly Tyr Trp
    4115   4120   4125

Asn Arg   Pro Gly Leu Thr Ala   Ser Arg Phe Ile   Ala   His Pro Tyr
    4130   4135   4140

Ser Glu   Glu Pro Gly Thr Arg   Leu Tyr Lys Thr   Gly   Asp Met Val
    4145   4150   4155

Arg Arg   Leu Ala Asp Gly Thr   Leu Glu Tyr Leu   Gly   Arg Gln Asp
    4160   4165   4170

Phe Glu   Val Lys Val Arg Gly   His Arg Val Asp   Thr   Arg Gln Val
    4175   4180   4185

Glu Ala   Ala Leu Arg Ala Gln   Pro Ala Val Ala   Glu   Ala Val Val
    4190   4195   4200

Ser Gly   His Arg Val Asp Gly   Asp Met Gln Leu   Val   Ala Tyr Val

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         4205                        4210                        4215
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Val Ala Arg Glu Gly Gln Ala Pro Ser Ala Gly Glu Leu Lys Gln
   4220   4225   4230

Gln Leu Ser Ala Gln Leu Pro Thr Tyr Met Leu Pro Thr Val Tyr
   4235   4240   4245

Gln Trp Leu Glu Gln Leu Pro Arg Leu Ser Asn Gly Lys Leu Asp
   4250   4255   4260

Arg Leu Ala Leu Pro Ala Pro Gln Ala Val His Ala Gln Glu Tyr
   4265   4270   4275

Val Ala Pro Arg Asn Gln Ala Glu Gln Arg Leu Ala Ala Leu Phe
   4280   4285   4290

Ala Glu Val Leu Arg Val Glu Gln Val Gly Ile His Asp Asn Phe
   4295   4300   4305

Phe Ala Leu Gly Gly His Ser Leu Ser Ala Ser Gln Leu Ile Ser
   4310   4315   4320

Arg Ile Ala Arg Asp Met Ala Ile Asp Leu Pro Leu Ala Met Leu
   4325   4330   4335

Phe Glu Leu Pro Thr Val Ala Gln Leu Ser Glu Ser Leu Ala Ser
   4340   4345   4350

His Ala Arg Asp Ser Asp Tyr Asp Val Ile Pro Ala Ser Thr Glu
   4355   4360   4365

Glu Ala Thr Ile Pro Leu Ser Thr Ala Gln Glu Arg Met Trp Phe
   4370   4375   4380

Leu His Lys Phe Val Gln Glu Thr Pro Tyr Asn Thr Pro Gly Leu
   4385   4390   4395

Ala Leu Leu Gln Gly Glu Leu Asp Ile Ser Ala Leu Gln Val Ala
   4400   4405   4410

Phe Arg Cys Val Leu Glu Arg His Ala Val Leu Arg Thr His Phe
   4415   4420   4425

Val Glu Thr Glu Gln Gln Cys Val Gln Val Ile Gly Ala Ala Glu
   4430   4435   4440

Gln Phe Val Leu Gln Leu Arg Ser Ile Arg Asp Glu Ala Asp Leu
   4445   4450   4455

His Gly Leu Leu His Thr Ala Val Ser Glu Pro Phe Asp Leu Glu
   4460   4465   4470

Arg Glu Leu Pro Leu Arg Ala Leu Leu Tyr Arg Leu Asp Asp Arg
   4475   4480   4485

Arg His Tyr Leu Ala Val Val Ile His His Ile Val Phe Asp Gly
   4490   4495   4500

Trp Ser Thr Ser Ile Leu Phe Arg Glu Leu Ala Thr His Tyr Ala
   4505   4510   4515

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Ala Cys   Arg His Gly Gln Ser   Ala Pro Leu Pro Pro   Leu Glu Leu
    4520              4525               4530

Ser Tyr   Ala Asp Tyr Ala Arg   Trp Glu Arg Ala Arg   Leu Asn Gln
    4535              4540               4545

Glu Asp   Ala Leu Arg Lys Leu   Glu Tyr Trp Lys Thr   Gln Leu Ala
    4550              4555               4560
Asp Ala   Pro Pro Leu Val Leu   Pro Thr Thr Tyr Ala   Arg Pro Val
    4565              4570               4575

Phe Gln   Asn Phe Asn Gly Ala   Thr Val Ala Leu Gln   Ile Glu Pro
    4580              4585               4590

Pro Leu   Leu Gln Arg Leu Gln   Arg Phe Ala Asp Ala   His Ser Phe
    4595              4600               4605

Thr Leu   Tyr Met Leu Leu Leu   Ala Ala Leu Gly Val   Val Leu Ser
    4610              4615               4620

Arg His   Ala Arg Gln Lys His   Phe Cys Ile Gly Ser   Pro Val Ala
    4625              4630               4635

Asn Arg   Ala Arg Ala Glu Leu   His Gly Leu Ile Gly   Leu Phe Val
    4640              4645               4650

Asn Thr   Leu Ala Val Arg Leu   Asp Leu Asp Gly Asn   Pro Ser Val
    4655              4660               4665

Arg Glu   Leu Leu Glu Arg Ile   His Cys Thr Thr Leu   Ala Ala Tyr
    4670              4675               4680

Glu His   Gln Asp Val Pro Phe   Glu Arg Ile Val Glu   Ser Leu Lys
    4685              4690               4695

Val Pro   Arg Asp Thr Ala Arg   Asn Pro Leu Gly Gln   Val Met Leu
    4700              4705               4710

Asn Phe   Gln Asn Met Pro Met   Ser Ala Phe Asp Leu   Asp Gly Val
    4715              4720               4725

Gln Val   Gln Val Leu Pro Met   His Asn Gly Thr Ala   Lys Cys Glu
    4730              4735               4740

Leu Thr   Phe Asp Leu Leu Leu   Asp Gly Ser Arg Leu   Ser Gly Phe
    4745              4750               4755

Val Glu   Tyr Ala Thr Gly Leu   Phe Ala Pro Glu Trp   Val Gln Ala
    4760              4765               4770

Leu Val   Gln Gln Phe Lys Cys   Val Leu Ala Ala Leu   Val Glu Arg
    4775              4780               4785

Pro Glu   Ala Ser Leu Asn Asp   Leu Pro Met Ala Pro   Asn Glu Ala
    4790              4795               4800

Gln Pro   Ala Ser Pro Ala Leu   Met Lys His Val Ala   Pro Ser Leu
    4805              4810               4815

Pro Asn   Leu Leu Glu Ala Met   Ala Ala Asn Asp Ala   Ala Arg Leu
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        4820                    4825                    4830
Ala Leu Gln Ala Pro Glu Gly Ala Leu Ser Tyr Ala Gln Leu Ile
        4835                    4840                    4845

Glu Ala Ala Asn Glu Phe Ala Trp Arg Leu Arg Cys Glu His Ala
        4850                    4855                    4860

Gly Pro Asp Lys Val Val Ala Leu Cys Leu Ala Pro Cys Ser Ala
        4865                    4870                    4875

Leu Val Val Ala Leu Leu Ala Ala Ser Leu Cys Gly Ala Ala Ser
        4880                    4885                    4890

Val Leu Ile Asp Pro Thr Thr Thr Ala Glu Ala Gln Tyr Asp Gln
        4895                    4900                    4905

Leu Phe Glu Thr Arg Ala Gly Ile Val Val Thr Cys Ser Ser Leu
        4910                    4915                    4920

Leu Glu Lys Leu Pro Leu Asp Asp Gln Ala Val Val Leu Ile Asp
        4925                    4930                    4935

Glu Gln Ala Ala Glu Ala Thr Pro Arg Leu Met His Phe Thr Asp
        4940                    4945                    4950

Asp Pro Ala Leu Pro Ala Met Leu Tyr Cys Val Cys Asp Glu Lys
        4955                    4960                    4965

Gly Arg Thr Arg Thr Ile Met Val Glu Ser Gly Ser Leu Ser Ser
        4970                    4975                    4980

Arg Leu Leu Asp Ser Val Gln Arg Phe Ser Leu Glu Arg Thr Asp
        4985                    4990                    4995

Arg Phe Leu Leu Arg Ser Pro Leu Ser Ala Glu Leu Ala Asn Thr
        5000                    5005                    5010

Glu Val Leu Gln Trp Leu Ala Ala Gly Gly Ser Leu Ser Ile Ala
        5015                    5020                    5025

Pro Met His Gly Asp Phe Asp Ala Ala Ala Trp Leu Glu Thr Leu
        5030                    5035                    5040

Ala Thr Tyr Ala Ile Thr Val Ala Tyr Leu Ala Gln Val Glu Leu
        5045                    5050                    5055

Thr Glu Met Leu Ala His Leu Gln Asn His Pro Leu Glu Arg Asn
        5060                    5065                    5070

Lys Leu Ala Gly Leu Arg Val Leu Val Val His Gly Ala Pro Leu
        5075                    5080                    5085

Pro Ile Ala Pro Leu Met Arg Leu Asp Ala Trp Leu Arg Glu Val
        5090                    5095                    5100

Gly Gly Ser Ala Arg Ile Phe Ala Ala Tyr Gly Asn Ala Glu Phe
        5105                    5110                    5115

Gly Ala Glu Ile Leu Ser Gln Asp Val Ser Ala Ala Leu Gln Ala
        5120                    5125                    5130
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Gly Ile  Gly Ala Gln Tyr Lys  His Arg Arg Gly Leu  Phe Pro Leu
    5135             5140                  5145

Gly Ala  Asn Ser Met Cys His  Val Val Gln Ser Asn  Gly Arg Ile
    5150             5155                  5160

Ala Pro  Asp Gly Met Val Gly  Glu Leu Trp Ile Thr  Gln Pro Ala
    5165             5170                  5175

Cys Leu  Tyr Lys Thr Asp Ala  Leu Val Arg Arg Leu  Ala Asn Gly
    5180             5185                  5190

Gln Leu  Glu Trp Leu Gly Ser  Leu Asp Val Gln Ser  Arg Ile Asp
    5195             5200                  5205

Asp Pro  Arg Ile Asp Leu Cys  Val Val Glu Ala Gln  Leu Arg Leu
    5210             5215                  5220

Cys Glu  Asp Val Gly Glu Ala  Val Val Leu Tyr Glu  Pro Leu Lys
    5225             5230                  5235

Arg Cys  Leu Val Ala Tyr Leu  Ser Ala Arg Ser Thr  Ala Ala Ile
    5240             5245                  5250

Met Thr  Asp Glu Thr Leu Ala  Arg Ile Arg Gln Ala  Leu Ser Glu
    5255             5260                  5265

Thr Leu  Pro Asp Tyr Leu Leu  Pro Ala Ile Trp Val  Pro Leu Ala
    5270             5275                  5280

His Trp  Pro Arg Leu Pro His  Gly Arg Val Asp Leu  Gly Ala Leu
    5285             5290                  5295

Pro Ala  Pro Asp Phe Asp Leu  Ala Arg His Glu Ser  Tyr Ile Ala
    5300             5305                  5310

Pro Arg  Thr Ala Val Glu Gln  Ala Val Ala Glu Ile  Trp Gln Arg
    5315             5320                  5325

Val Leu  Lys Arg Thr Gln Val  Gly Val His Asp Asn  Phe Phe Glu
    5330             5335                  5340

Leu Gly  Gly His Ser Val Leu  Ala Ile Gln Leu Val  Ser Gly Leu
    5345             5350                  5355

Arg Lys  Ala Leu Ala Ile Glu  Val Pro Val Thr Leu  Val Phe Glu
    5360             5365                  5370

Ala Pro  Ile Leu Gly Ala Leu  Ala Arg Gln Ile Ala  Pro Leu Leu
    5375             5380                  5385

Val Ser  Glu Arg Arg Pro Arg  Pro Pro Gly Leu Thr  Arg Leu Glu
    5390             5395                  5400

His Thr  Gly Pro Ile Pro Ala  Ser Tyr Ala Gln Glu  Arg Leu Trp
    5405             5410                  5415

Leu Val  His Glu His Met Glu  Glu Gln Arg Thr Ser  Tyr Asn Ile
    5420             5425                  5430
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Ser Asn  Ala Ala His Phe Ile  Gly Ala Ala Phe Ser  Val Glu Ala
    5435             5440              5445

Met Arg  Ala Ala Leu Asn Ala  Leu Val Ala Arg His  Glu Val Leu
    5450             5455              5460

Arg Thr  Arg Phe Leu Ser Glu  Asp Gly Gln Leu Gln  Gln Val Ile
    5465             5470              5475

Ala Ala  Ser Leu Thr Leu Glu  Val Pro Val Arg Glu  Val Ser Ala
    5480             5485              5490

Glu Glu  Val Asp Leu Leu Leu  Ala Ala Ser Thr Arg  Glu Thr Phe
    5495             5500              5505

Asp Leu  Arg Gln Gly Pro Leu  Phe Lys Ala Arg Ile  Leu Arg Val
    5510             5515              5520

Ala Ala  Asp His His Val Val  Leu Ser Ser Ile His  His Ile Ile
    5525             5530              5535

Ser Asp  Gly Trp Ser Leu Gly  Val Phe Asn Arg Asp  Leu His Gln
    5540             5545              5550

Leu Tyr  Glu Ala Cys Leu Arg  Gly Thr Pro Pro Thr  Leu Pro Thr
    5555             5560              5565

Leu Ala  Val Gln Tyr Ala Asp  Tyr Ala Leu Trp Gln  Arg Gln Trp
    5570             5575              5580

Glu Leu  Ala Ala Pro Leu Ser  Tyr Trp Thr Arg Ala  Leu Glu Gly
    5585             5590              5595

Tyr Asp  Asp Gly Leu Asp Leu  Pro Tyr Asp Arg Pro  Arg Gly Ala
    5600             5605              5610

Thr Arg  Ala Trp Arg Ala Gly  Leu Val Lys His Arg  Tyr Pro Pro
    5615             5620              5625

Gln Leu  Ala Gln Gln Leu Ala  Ala Tyr Ser Gln Gln  Tyr Gln Ala
    5630             5635              5640

Thr Leu  Phe Met Ser Leu Leu  Ala Gly Leu Ala Leu  Val Leu Gly
    5645             5650              5655

Arg Tyr  Ala Asp Arg Lys Asp  Val Cys Ile Gly Ala  Thr Val Ser
    5660             5665              5670

Gly Arg  Asp Gln Leu Glu Leu  Glu Glu Leu Ile Gly  Phe Phe Ile
    5675             5680              5685

Asn Ile  Leu Pro Leu Arg Val  Asp Leu Ser Gly Asp  Pro Cys Leu
    5690             5695              5700

Glu Glu  Val Leu Leu Arg Thr  Arg Gln Val Val Leu  Asp Gly Phe
    5705             5710              5715

Ala His  Gln Ser Val Pro Phe  Glu His Val Leu Gln  Ala Leu Arg
    5720             5725              5730

Arg Gln  Arg Asp Ser Ser Gln  Ile Pro Leu Val Pro  Val Met Leu
```

```
        5735                      5740                         5745

Arg His Gln Asn Phe Pro Thr Gln Glu Ile Gly Asp Trp Pro Glu
    5750                      5755                    5760

Gly Val Arg Leu Thr Gln Met Glu Leu Gly Leu Asp Arg Ser Thr
    5765                      5770                    5775

Pro Ser Glu Leu Asp Trp Gln Phe Tyr Gly Asp Gly Ser Ser Leu
    5780                      5785                    5790

Glu Leu Thr Leu Glu Tyr Ala Gln Asp Leu Phe Asp Glu Ala Thr
    5795                      5800                    5805

Val Arg Arg Met Ile Ala His His Gln Gln Ala Leu Glu Ala Met
    5810                      5815                    5820

Val Ser Arg Pro Gln Leu Arg Val Gly Lys Trp Asp Met Leu Thr
    5825                      5830                    5835

Ala Glu Glu Arg Arg Leu Phe Ala Ala Leu Asn Ala Thr Gly Thr
    5840                      5845                    5850

Pro Arg Glu Trp Pro Ser Leu Ala Gln Gln Phe Glu Arg Gln Ala
    5855                      5860                    5865

Gln Ala Thr Pro Gln Ala Ile Ala Cys Val Ser Asp Gly Gln Ser
    5870                      5875                    5880

Trp Ser Tyr Ala Gln Leu Glu Ala Arg Ala Asn Gln Leu Ala Gln
    5885                      5890                    5895

Ala Leu Arg Gly Gln Gly Ala Gly Arg Asp Val Arg Val Ala Val
    5900                      5905                    5910

Gln Ser Ala Arg Thr Pro Glu Leu Leu Met Ala Leu Leu Ala Ile
    5915                      5920                    5925

Phe Lys Ala Gly Ala Cys Tyr Val Pro Ile Asp Pro Ala Tyr Pro
    5930                      5935                    5940

Ala Ala Tyr Arg Glu Gln Ile Leu Ala Glu Val Gln Val Ser Ile
    5945                      5950                    5955
Val Leu Glu Gln Gly Glu Leu Ala Leu Asp Glu Gln Gly Gln Phe
    5960                      5965                    5970

Arg Asn Arg Arg Trp Arg Glu Gln Ala Pro Thr Pro Leu Gly Leu
    5975                      5980                    5985

Arg Gly His Pro Gly Asp Leu Ala Cys Val Met Val Thr Ser Gly
    5990                      5995                    6000

Ser Thr Gly Arg Pro Lys Gly Val Met Val Pro Tyr Ala Gln Leu
    6005                      6010                    6015

His Asn Trp Leu His Ala Gly Trp Gln Arg Ser Ala Phe Glu Ala
    6020                      6025                    6030

Gly Glu Arg Val Leu Gln Lys Thr Ser Ile Ala Phe Ala Val Ser
    6035                      6040                    6045
```

Val Lys Glu Leu Leu Ser Gly   Leu Leu Ala Gly Val   Gly Gln Val
    6050   6055   6060

Met Leu Pro Asp Glu Gln Val   Lys Asp Ser Leu Ala   Leu Ala Arg
    6065   6070   6075

Ala Ile Glu Gln Trp Gln Val   Thr Arg Leu Tyr Leu   Val Pro Ser
    6080   6085   6090

His Leu Gln Ala Leu Leu Asp   Ala Thr Gln Gly Arg   Asp Gly Leu
    6095   6100   6105

Leu His Ser Leu Arg His Val   Val Thr Ala Gly Glu   Ala Leu Pro
    6110   6115   6120

Ser Ala Val Gly Glu Ala Val   Arg Val Arg Leu Pro   Gln Val Gln
    6125   6130   6135

Leu Trp Asn Asn Tyr Gly Cys   Thr Glu Leu Asn Asp   Ala Thr Tyr
    6140   6145   6150

His Arg Ser Asp Thr Val Ala   Pro Gly Thr Phe Val   Pro Ile Gly
    6155   6160   6165

Ala Pro Ile Ala Asn Thr Glu   Val Tyr Val Leu Asp   Arg Gln Leu
    6170   6175   6180

Arg Gln Val Pro Ile Gly Val   Met Gly Glu Leu His   Val His Ser
    6185   6190   6195

Val Gly Met Ala Arg Gly Tyr   Trp Asn Arg Pro Gly   Leu Thr Ala
    6200   6205   6210

Ser Arg Phe Ile Ala His Pro   Tyr Ser Glu Glu Pro   Gly Thr Arg
    6215   6220   6225

Leu Tyr Lys Thr Gly Asp Met   Val Arg Arg Leu Ala   Asp Gly Thr
    6230   6235   6240

Leu Glu Tyr Leu Gly Arg Gln   Asp Phe Glu Val Lys   Val Arg Gly
    6245   6250   6255

His Arg Val Asp Thr Arg Gln   Val Glu Ala Ala Leu   Arg Ala Gln
    6260   6265   6270

Pro Ala Val Ala Glu Ala Val   Val Ser Gly His Arg   Val Asp Gly
    6275   6280   6285

Asp Met Gln Leu Val Ala Tyr   Val Val Ala Arg Glu   Gly Gln Ala
    6290   6295   6300

Pro Ser Ala Gly Glu Leu Lys   Gln Gln Leu Ser Ala   Gln Leu Pro
    6305   6310   6315

Thr Tyr Met Leu Pro Thr Val   Tyr Gln Trp Leu Glu   Gln Leu Pro
    6320   6325   6330

Arg Leu Ser Asn Gly Lys Leu   Asp Arg Leu Ala Leu   Pro Ala Pro
    6335   6340   6345

Gln Val Val His Ala Gln Glu   Tyr Val Ala Pro Arg   Asn Glu Ala

57/93

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           6350                    6355                    6360
Glu Gln Arg Leu Ala Ala Leu Phe Ala Glu Val Leu Arg Val Glu
        6365            6370            6375
Gln Val Gly Ile His Asp Asn Phe Phe Ala Leu Gly Gly His Ser
        6380            6385            6390
Leu Ser Ala Ser Gln Leu Ile Ser Arg Ile Arg Gln Ser Phe His
        6395            6400            6405
Val Asp Leu Pro Leu Ser Arg Ile Phe Glu Ala Pro Thr Ile Glu
        6410            6415            6420
Gly Leu Val Arg Gln Leu Ala Leu Pro Ser Glu Gly Gly Val Ala
        6425            6430            6435
Ser Ile Ala Arg Val Ala Arg Asn Arg Thr Ile Pro Leu Ser Leu
        6440            6445            6450
Phe Gln Glu Arg Leu Trp Phe Val His Gln His Met Pro Glu Gln
        6455            6460            6465
Arg Thr Ser Tyr Asn Gly Thr Leu Ala Leu Arg Leu Arg Gly Pro
        6470            6475            6480
Leu Ser Val Glu Ala Met Arg Ala Ala Leu Arg Ala Leu Val Leu
        6485            6490            6495
Arg His Glu Ile Leu Arg Thr Arg Phe Val Leu Pro Thr Gly Ala
        6500            6505            6510
Ser Glu Pro Val Gln Val Ile Asp Glu His Ser Asp Phe Gln Leu
        6515            6520            6525
Ser Val Gln Leu Val Glu Asp Thr Glu Ile Ala Ser Leu Met Asp
        6530            6535            6540
Glu Leu Ala Ser His Ile Tyr Asp Leu Ala Asn Gly Pro Leu Phe
        6545            6550            6555
Ile Ala Cys Leu Leu Gln Leu Asp Glu Gln Glu His Val Leu Leu
        6560            6565            6570
Ile Gly Met His His Leu Ile Tyr Asp Ala Trp Ser Gln Phe Thr
        6575            6580            6585
Val Met Asn Arg Asp Leu Arg Val Leu Tyr His Arg His Leu Gly
        6590            6595            6600
Leu Ala Gly Gly Asp Leu Pro Glu Leu Pro Ile Gln Tyr Ala Asp
        6605            6610            6615
Tyr Ala Ile Trp Gln Arg Ala Gln Asn Leu Asp Ala Gln Leu Ala
        6620            6625            6630
Tyr Trp Gln Ala Met Leu His Asp Tyr Asp Asp Gly Leu Glu Leu
        6635            6640            6645
Pro Tyr Asp Tyr Pro Arg Pro Arg Asn Arg Thr Trp His Ala Ala
        6650            6655            6660
```

```
Val Tyr  Thr His Thr Tyr  Pro  Ala Glu Leu Val Gln  Arg Phe Ala
    6665              6670              6675

Gly Phe  Val Gln Ala His  Gln  Ser Thr Leu Phe Ile  Gly Leu Leu
    6680              6685              6690

Ala Ser  Phe Ala Val Val  Leu  Asn Lys Tyr Thr Gly  Arg Asp Asp
    6695              6700              6705

Leu Cys  Ile Gly Thr Thr  Thr  Ala Gly Arg Thr His  Leu Glu Leu
    6710              6715              6720

Glu Asn  Leu Ile Gly Phe  Phe  Ile Asn Ile Leu Pro  Leu Arg Leu
    6725              6730              6735

Arg Leu  Asp Gly Asp Pro  Asp  Val Ala Glu Ile Met  Arg Arg Thr
    6740              6745              6750

Arg Leu  Val Ala Met Ser  Ala  Phe Glu Asn Gln Ala  Leu Pro Phe
    6755              6760              6765

Glu His  Leu Leu Asn Ala  Leu  His Lys Gln Arg Asp  Thr Ser Arg
    6770              6775              6780

Ile Pro  Leu Val Pro Val  Val  Met Arg His Gln Asn  Phe Pro Asp
    6785              6790              6795

Thr Ile  Gly Asp Trp Ser  Asp  Gly Ile Arg Thr Glu  Val Ile Gln
    6800              6805              6810

Arg Asp  Leu Arg Ala Thr  Pro  Asn Glu Met Asp Leu  Gln Phe Phe
    6815              6820              6825

Gly Asp  Gly Thr Gly Leu  Ser  Val Thr Val Glu Tyr  Ala Ala Glu
    6830              6835              6840

Leu Phe  Ser Glu Ala Thr  Ile  Arg Arg Leu Ile His  His His Gln
    6845              6850              6855

Leu Val  Leu Glu Gln Met  Leu  Ala Ala His Glu Ser  Ala Thr Cys
    6860              6865              6870

Pro Leu  Asp Val Ala Asp
    6875
```

<210>   27
<211>   343
<212>   PRT
<213>   Xanthomonas albilineans

<400>   27

```
Met Asp Ser Ala Leu Pro Thr Ser Ala Phe Thr Phe Asp Leu Phe Tyr
1                   5                   10                  15

Thr Thr Val Asn Ala Tyr Tyr Arg Thr Ala Ala Val Lys Ala Ala Ile
             20                  25                  30

Glu Leu Gly Leu Phe Asp Val Val Gly Gln Gln Gly Arg Thr Pro Ala
             35                  40                  45
```

```
Ala Ile Ala Glu Ala Cys Gln Ala Ser Pro Arg Gly Ile Arg Ile Leu
    50                  55                  60

Cys Tyr Tyr Leu Val Ser Ile Gly Phe Leu Arg Arg Asn Gly Gly Leu
65                  70                  75                  80

Phe Tyr Ile Asp Arg Asn Met Ala Met Tyr Leu Asp Arg Ser Ser Pro
                85                  90                  95

Gly Tyr Leu Gly Gly Ser Ile Lys Phe Leu Leu Ser Pro Tyr Ile Met
            100                 105                 110

Ser Ala Phe Thr Asp Leu Thr Ala Val Val Arg Thr Gly Lys Ile Asn
        115                 120                 125

Leu Ala Gln Asp Gly Val Val Ala Pro Asp His Pro Gln Trp Val Glu
    130                 135                 140

Phe Ala Arg Ala Met Ala Pro Met Met Ala Leu Pro Ser Ala Leu Ile
145                 150                 155                 160

Ala Asn Met Val Ser Leu Pro Ala Asp Arg Pro Ile Arg Val Leu Asp
                165                 170                 175

Val Ala Ala Gly His Gly Leu Phe Gly Ile Ala Phe Ala Gln Arg Phe
            180                 185                 190

Arg Gln Ala Glu Val Ser Phe Leu Asp Trp Asp Asn Val Leu Asp Val
        195                 200                 205

Ala Arg Glu Asn Ala Gln Ala Ala Lys Val Ala Glu Arg Ala Arg Phe
    210                 215                 220

Leu Pro Gly Asn Ala Phe Asp Leu Asp Tyr Gly Ser Gly Tyr Asp Val
225                 230                 235                 240

Ile Leu Leu Thr Asn Phe Leu His His Phe Asp Glu Val Asp Gly Glu
                245                 250                 255

Arg Ile Leu Ala Lys Thr Arg Asp Ala Leu Asn Asp Asp Gly Met Val
            260                 265                 270

Ile Thr Phe Glu Phe Ile Ala Asp Glu Glu Arg Ser Ser Pro Pro Leu
        275                 280                 285

Ala Ala Thr Phe Ser Met Met Met Leu Gly Thr Thr Pro Ala Gly Glu
    290                 295                 300

Ser Tyr Thr Tyr Ser Asp Leu Glu Arg Met Phe Arg His Ala Gly Phe
305                 310                 315                 320

Gly His Val Glu Leu Lys Ser Ile Pro Pro Ala Leu Leu Lys Val Val
            325                 330                 335

Val Ser Arg Lys Arg Ala Pro
            340
```

<210> 28
<211> 167

<212> PRT
<213> Xanthomonas albilineans

<400> 28

Met Ile Glu Ser Ala Thr Ser Pro Val Ala Lys Thr Glu Arg Ile Trp
1   5   10   15

Cys Thr Glu Leu Asp Leu Asp Ala Leu Asn Ala Met Ser Ala Asn Thr
                20   25   30

Met Gln Ala Leu Leu Gly Ile Arg Met Ile Glu Ile Gly Ser Asp Tyr
            35   40   45

Leu Val Ser Cys Met Ser Val Asp Trp Arg Cys His Gln Pro Tyr Gly
    50   55   60

Val Leu His Gly Gly Ala Ser Val Thr Leu Ala Glu Ala Thr Gly Ser
65   70   75   80

Met Ala Ala Ser Met Cys Val Pro Ala Gly Gln Arg Cys Val Gly Leu
                85   90   95

Asp Ile Asn Ala Asn His Ile Ala Ser Ile Ser Ser Gly Gln Val Gln
            100   105   110

Cys Ile Ala Arg Pro Leu His Ile Gly Ala Leu Thr Gln Val Trp Gln
            115   120   125

Met Arg Ile Tyr Asp Glu Gly Asp Arg Thr Ile Cys Val Ser Arg Leu
    130   135   140

Thr Met Ala Val Leu Ser Val His Val Ala Arg Val Ser Pro Asn Pro
145   150   155   160

Ala Ser Ser Gly Val Gln Thr
                165

<210> 29
<211> 941
<212> PRT
<213> Xanthomonas albilineans

<400> 29

Met Asn Glu Thr Ala Thr Val Thr Lys Ala Thr Leu Ser Ser Ala Lys
1   5   10   15

Ala Ser Ile Thr Pro Ala Cys Val His Gln Trp Phe Glu Ala Gln Val
                20   25   30

Ser Ser Thr Pro Asp Ala Pro Ala Ala Phe Leu Gly Glu Arg Arg Met
            35   40   45

Ser Tyr Gly Gln Leu Asn Thr Arg Ala Asn Arg Leu Ala Arg Leu Leu
    50   55   60

Gln Ser Gln Gly Val Gly Pro Gly Ala Arg Val Ala Val Trp Met Asn
65   70   75   80

Arg Ser Pro Glu Cys Leu Ala Ala Leu Leu Ala Val Met Lys Ala Gly
                85   90   95

Ala Ala Tyr Val Pro Ile Asp Leu Ser Leu Pro Ile Arg Arg Val Gln
              100   105   110

Tyr Ile Leu Gln Asp Ser Gln Ala Arg Leu Val Leu Val Asp Asp Glu
         115   120   125

Gly Gln Gly Arg Leu Asp Glu Leu Glu Leu Gly Ala Met Thr Ala Val
    130   135   140

Asp Val Cys Gly Thr Leu Asp Gly Asp Glu Ala Asn Leu Asp Leu Pro
145   150   155   160

Cys Asp Pro Ala Gln Pro Val Tyr Cys Ile Tyr Thr Ser Gly Ser Thr
              165   170   175   .

Gly Ser Pro Lys Gly Val Leu Val Arg His Ser Gly Leu Ala Asn Tyr
              180   185   190

Val Ala Trp Ala Lys Arg Gln Tyr Val Thr Ala Asp Thr Thr Ser Phe
         195   200   205

Ala Phe Tyr Ser Ser Leu Ser Phe Asp Leu Thr Val Thr Ser Ile Tyr
    210   215   220

Val Pro Leu Val Ala Gly Leu Cys Val His Val Tyr Pro Glu Gln Gly
225   230   235   240

Asp Asp Val Pro Val Ile Asn Arg Val Leu Asp Asp Asn Gln Val Asp
              245   250   255

Val Ile Lys Leu Thr Pro Ser His Met Leu Met Leu Arg Asn Ala Ala
         260   265   270

Leu Ala Thr Ser Arg Leu Lys Thr Leu Ile Val Gly Gly Glu Asp Leu
    275   , 280   285

Lys Ala Ala Val Ala Tyr Asp Ile His Gln Arg Phe Arg Arg Asp Val
    290   '   295   300

Ala Ile Tyr Asn Glu Tyr Gly Pro Thr Glu Thr Val Val Gly Cys Ala
305   310   315   320

Ile His Arg Tyr Asp Pro Ala Thr Glu Arg Glu Gly Ser Val Pro Ile
              325   330   335

Gly Val Pro Ile Asp His Thr Ser Leu His Leu Leu Asp Glu Arg Leu
              340   345   350

Gln Pro Val Ala Pro Gly Glu Val Gly Gln Ile His Ile Gly Gly Ala
         355   360   365

Gly Val Ala Ile Gly Tyr Val Asn Lys Pro Glu Ile Thr Asp Ala Gln
    370   375   380

Phe Ile Asp Asn Pro Phe Glu Gly Ser Gly Arg Leu Tyr Ala Ser Gly
385   390   395   400

Asp Leu Gly Arg Met Arg Ala Asp Gly Lys Leu Glu Phe Leu Gly Arg

           405   410   415

Lys Asp Ser Gln Ile Lys Leu Arg Gly Tyr Arg Ile Glu Leu Gly Glu
         420   425   430

Ile Glu Asn Val Leu Leu Gly His Ala Ala Leu Arg Glu Cys Ile Val
         435   440   445

Asp Thr Thr Val Ala Pro Arg Arg Asp Tyr Asp Ser Lys Ser Leu Arg
    450   455   460

Tyr Cys Ala Arg Cys Gly Ile Ala Ser Asn Phe Pro Asn Thr Ser Phe
465   470   475   480

Asp Glu His Gly Val Cys Asn His Cys His Ala Tyr Asp Lys Tyr Arg
           485   490   495

Asn Val Val Glu Asp Tyr Phe Arg Thr Glu Asp Glu Leu Arg Thr Ile
         500   505   510

Phe Glu Gln Val Lys Ala His Asn Arg Leu Arg Tyr Asp Cys Leu Val
         515   520   525

Ala Phe Ser Gly Gly Lys Asp Ser Thr Tyr Ala Leu Cys Arg Val Val
         530   535   540

Asp Met Gly Leu Arg Val Leu Ala Tyr Thr Leu Asp Asn Gly Tyr Ile
545   550   555   560

Ser Asp Glu Ala Lys Ala Asn Val Asp Arg Val Val Arg Glu Leu Gly
         565   570   575

Val Asp His Arg Tyr Leu Gly Thr Pro His Met Asn Ala Ile Phe Val
         580   585   590

Asp Ser Leu His Arg His Ser Asn Val Cys Asn Gly Cys Phe Lys Thr
         595   600   605

Ile Tyr Thr Leu Gly Ile Asn Leu Ala His Glu Val Gly Val Ser Asp
         610   615   620

Ile Val Met Gly Leu Ser Lys Gly Gln Leu Phe Glu Thr Arg Leu Ser
625   630   635   640

Glu Leu Phe Arg Ala Ser Thr Phe Asp Asn Gln Val Phe Glu Lys Asn
         645   650   655

Leu Met Glu Ala Arg Lys Ile Tyr His Arg Ile Asp Asp Ala Ala Ala
         660   665   670

Arg Leu Leu Asp Thr Ser Cys Val Arg Asn Asp Arg Leu Leu Glu Ser
         675   680   685

Thr Arg Phe Ile Asp Phe Tyr Arg Tyr Cys Ser Val Ser Arg Lys Asp
         690   695   700

Met Tyr Arg Tyr Ile Ala Glu Arg Val Gly Trp Ser Arg Pro Ala Asp
705   710   715   720

Thr Gly Arg Ser Thr Asn Cys Leu Leu Asn Asp Val Gly Ile Tyr Met
         725   730   735

```
His Lys Lys Gln Arg Gly Tyr His Asn Tyr Ser Leu Pro Tyr Ser Trp
             740             745             750

Asp Val Arg Val Gly His Ile Pro Arg Glu Asp Ala Met Arg Glu Leu
         755             760             765

Glu Asp Thr Asp Asp Ile Asp Glu Ala Lys Val Leu Gly Leu Leu Lys
    770             775             780

Gln Ile Gly Tyr Asp Ser Ser Leu Ile Asp Thr Gln Ala Gly Asp Ala
785             790             795             800

Gln Leu Ile Ala Tyr Tyr Val Ala Ala Glu Glu Leu Asp Pro Val Ala
             805             810             815

Leu Arg Asn Phe Ala Ala Ala Ile Leu Pro Glu Tyr Met Leu Pro Ser
             820             825             830

Tyr Phe Val Arg Leu Asp Arg Met Pro Leu Thr Pro Asn Gly Lys Val
             835             840             845

Asn Arg Arg Ala Leu Pro Arg Pro Glu Leu Lys Lys Asn Ala Ser Glu
    850             855             860

Ala His Thr Glu Pro Ser Ser Ala Leu Glu Gln Glu Leu Val Gln Ile
865             870             875             880

Trp Lys Glu Val Leu Met Val Asp Lys Val Gly Val Arg Asp Asn Phe
             885             890             895

Phe Glu Leu Gly Gly His Ser Leu Ser Ala Leu Met Leu Leu Tyr Ser
             900             905             910

Ile Ala Glu Arg Tyr Gln Lys Met Val Ser Ile Gln Ala Phe Ser Val
             915             920             925

Asn Pro Thr Ile Glu Gly Leu Ser Glu His Leu Val Ala
    930             935             940
```

```
<210>    30
<211>    239
<212>    PRT
<213>    Xanthomonas albilineans

<400>    30
```

```
Met Asp Leu Gln Cys Ala Arg Ile Ala Ala Leu Cys Glu Gln Leu Lys
1               5               10              15

Leu Ala Arg Leu Ser Ser Asp Trp Gln Ala Leu Ala Gln Ala Ala Ala
             20              25              30

Cys Glu Asp Ala Ser Tyr Phe Leu Glu Lys Val Leu Ala Ser Glu Gln
         35              40              45

Leu Ala Arg Glu Glu Arg Lys Arg Thr Val Leu Thr Arg Leu Ala Arg
    50              55              60

Met Pro Ser Ile Lys Thr Leu Glu Gln Phe Asp Trp Ala Gln Ala Gly
```

```
65                      70                      75                      80

Gly Ala Ser Lys Ala Gln Ile Val Glu Leu Gly His Leu Thr Phe Val
                85                  90                  95

Glu Arg Ala Glu Asn Val Val Met Leu Gly Pro Ser Gly Val Gly Lys
                100                 105                 110

Thr His Ile Ala Leu Ala Leu Cys Gln Arg Ala Val Met Ala Gly His
        115                 120                 125

Lys Ala Arg Phe Ile Thr Ala Ala Asp Leu Met Met Gln Leu Ala Ala
    130                 135                 140

Val Lys Ala Gln Asn Arg Leu Lys Asp Tyr Phe Asn Arg Ala Val Leu
145                 150                 155                 160

Gly Pro Lys Leu Leu Val Val Asp Glu Ile Gly Tyr Leu Pro Phe Gly
                165                 170                 175

Arg Glu Pro Ala Gln Gly Cys Trp Ala Ala Thr Gly Phe Ala Leu Arg
            180                 185                 190

Ser Leu Ala Ala Arg Arg Trp Lys Thr Pro Gly Gly Ser Asp Leu Leu
        195                 200                 205

Arg Arg Phe Lys Gly Lys Trp Val Lys Phe Lys Ser Ala Leu Thr Ala
    210                 215                 220

Asp Val Val Tyr Leu Ile Phe Arg Leu Arg Gly Ser Asp His Pro
225                 230                 235
```

```
<210>   31
<211>   286
<212>   PRT
<213>   Xanthomonas albilineans

<400>   31
```

```
Met Pro Arg Ile Glu Tyr Cys Ile Ser Met Met His Arg Arg Lys Pro
1               5                   10                  15

Thr Thr Asn Arg Ser Val Cys Met Arg Asp Ile Glu Arg Thr Ala Leu
            20                  25                  30

Trp Val Ala Gly Met Arg Ala Leu Glu Ser Glu Arg Glu Gln Ala Leu
        35                  40                  45

Phe His Asp Pro Phe Ala Arg Arg Leu Ala Gly Asp Glu Phe Val Glu
    50                  55                  60

Glu Leu Arg Arg Asn Asn Gln Asn Val Pro Met Pro Pro Ala Ile Glu
65                  70                  75                  80

Val Arg Thr Arg Trp Leu Asp Asp Lys Ile Met Gln Ala Val Ser Glu
            85                  90                  95

Gly Ile Gly Gln Val Val Ile Leu Ala Ala Gly Met Asp Ala Arg Ala
            100                 105                 110
```

```
Tyr Arg Leu Pro Trp Pro Ser Asp Thr Arg Val Tyr Glu Ile Asp His
        115             120             125

Met Asp Val Leu Ser Asp Lys His Glu Lys Leu His Asp Ala Gln Pro
    130             135             140

Val Cys Gln Arg Ile Ala Leu Pro Ile Asp Leu Arg Glu Asp Trp Pro
145             150             155             160

Gln Ala Leu Lys Glu Ser Gly Phe Val Gly Ser Ala Ala Thr Leu Trp
            165             170             175

Leu Val Glu Gly Leu Leu Cys Tyr Leu Ser Ala Glu Ala Val Met Leu
            180             185             190

Leu Phe Ala Arg Ile Asp Ala Leu Ser Ala Lys Gly Ser Ser Val Leu
        195             200             205

Phe Asp Val Ile Gly Leu Ser Met Leu Asn Ser Pro Asn Ala Arg Val
    210             215             220

Leu His Ala Met Ala Arg Gln Phe Gly Thr Asp Glu Pro Glu Ser Leu
225             230             235             240

Ile Gln Pro Leu Gly Trp Glu Pro Gly Val Leu Thr Ile Ala Ala Ala
            245             250             255

Gly Gln Gln Met Gly Arg Trp Pro Phe Pro Val Ala Pro Arg Gly Thr
            260             265             270

His Gly Val Pro Gln Ser Tyr Leu Val His Ala Leu Lys Arg
        275             280             285


<210> 32
<211> 765
<212> PRT
<213> Xanthomonas albilineans

<400> 32

Met Arg Arg Ser Pro Tyr Pro Arg Thr Leu Met Asp Ser Pro Leu Thr
1               5               10              15

Asn Leu Pro Met His Ser Gly Thr Glu Leu Asp Leu Arg Trp Ser Val
            20              25              30

Gly Gln Thr Arg Pro Gly Arg Asn Glu Ala Tyr Ala Arg Gln Trp Thr
        35              40              45

Thr Leu Leu His Gln Trp Arg Arg Asp Tyr Pro Gly Leu Arg Ile Asp
    50              55              60

Val Ser Asp Thr Pro Ile Gly Gln His Ile Thr Ile Asp Tyr Ala Ala
65              70              75              80

Pro Tyr Pro Cys Gly Ser Phe Gly Ser Leu Leu Arg Glu Tyr Ala Arg
            85              90              95

Leu Gly Lys Leu Ala Gly Leu Ile Cys Asp Tyr Leu Lys His Arg His
            100             105             110
```

Gln Ile Val Leu Ser Glu Ser Pro Pro Gly Ala Asn Thr Leu Ala Leu
        115   120   125

Asp Leu Gly Arg Ile Glu Glu Pro Lys Gln Leu Asp Arg Leu Gln Gly
        130   135   140

Ala Leu Gly Met Ala Leu Glu Ala Leu Ala Thr Arg Arg Ser Asp Gly
145   150   155   160

Leu Leu Leu Trp His Ala Asp His Arg Gln Arg Asn Leu Pro Asp Leu
                165   170   175

Arg Asp Ser Ala Val Cys Gly Ser Ala Ala Gln Ile Ser Leu Pro Ala
            180   185   190

Leu Ser Cys Val Glu Asp Leu Ile Glu Val Asp Thr Ser Leu Leu Ala
        195   200   205

Cys Asp His Gly Lys Leu Cys Gln Ile Ala Ser His Leu Pro Ala Ser
    210   215   220

Trp Phe Ala Arg Ser Thr Asp Gly Pro Met Pro Ser Trp Ser Asp Ala
225   230   235   240

Ser Thr Ala Val Phe Ala Cys Ala Pro Ile Gly Phe Leu Pro Ser Val
                245   250   255

Gln Val Asn Val Cys Ala Gln Ile Phe Ser Ala Ala His Leu Ala Ser
            260   265   270

Thr Ala Gln Met Ile Asp Pro Leu Arg Gln Gln Ala Phe Ser Tyr Arg
    275   280   285

Gln Leu Arg Ser Arg Ala Ala Thr Tyr Ala Arg His Leu Ser Leu Leu
    290   295   300

Gly Leu Gln Ser Gly Asp Ala Val Ala Leu Ile Ala Ile Asp Ser Leu
305   310   315   320

Ala Gly Val Ala Leu Met Leu Ala Cys Leu Ala Gly Gly Leu Val Phe
                325   330   335

Ala Pro Ile Asn Glu Leu Val Ser Leu Val His Phe Glu Thr Thr Leu
            340   345   350

Lys Thr Ile Lys Pro Arg Leu Val Leu Ile Asp Ala Glu Leu Pro Pro
        355   360   365

Ser His His Ala Ala Leu Arg His Leu Pro Thr Leu Glu Leu Thr Ser
    370   375   380

Leu Met Pro Val Ile Glu Asn Asp Glu Leu Val Val Ala Pro Cys Ser
385   390   395   400

Ala Asp Ala Pro Ala Val Met Ile Cys Thr Ser Gly Ser Thr Gly Thr
            405   410   415

Pro Lys Ala Val Thr His Ser His Ala Asp Phe Met His Cys His Leu
            420   425   430

Asn Tyr Gln Gln Ala Val Leu Gly Leu Arg Ser Asp Asp Val Met Tyr
        435   440   445

Thr Pro Ser Arg Leu Phe Phe Ala Tyr Gly Leu Asn Asn Leu Met Leu
    450   455   460

Ser Leu Leu Ala Gly Val Ser His Val Ile Ala Ala Pro Leu Ser Val
465   470   475   480

Arg Gln Ile Ala Gln Thr Ile His Thr Tyr His Val Thr Val Leu Leu
            485   490   495

Ala Val Pro Ala Val Phe Lys Leu Leu Leu Ala Glu Ala Ala Pro Asp
        500   505   510

Ala Val Trp Pro Ala Leu Arg Leu Cys Ile Ser Ala Gly Glu Ser Leu
        515   520   525

Pro Ala Arg Leu Gly His Ala Ile Ser Thr Arg Trp Gln Val Glu Val
    530   535   540

Leu Asp Gly Ile Gly Cys Thr Glu Val Leu Ser Thr Phe Ile Ser Asn
545   550   555   560

Arg Pro Gly His Ala Leu Met Gly Cys Thr Gly Thr Pro Val Pro Gly
            565   570   575

Phe Val Val Lys Leu Val Asn Lys Gln Gly Glu Ile Cys Arg Ile Gly
        580   585   590

Glu Val Gly Ser Leu Trp Val Arg Gly Asn Thr Leu Thr Arg Gly Tyr
    595   600   605

Val Gly Asp Pro Ile Leu Ser Ala Gln Leu Phe Val Asp Gly Trp Phe
    610   615   620

Asp Thr Arg Asp Leu Phe Phe Ala Asp Ala Lys Gly Arg Phe His Asn
625   630   635   640

Leu Gly Arg Met Gly Ser Ala Ile Lys Ile Asn Gly Cys Trp Leu Ser
            645   650   655

Pro Glu Thr Leu Glu Ser Val Ile Gln Thr His Ala Cys Val Lys Glu
            660   665   670

Cys Ala Ile Cys Leu Ile Glu Asp Glu Phe Gly Leu Pro Arg Pro Ala
    675   680   685

Ala Phe Val Val Pro Val Asp Ala Ser Ile Asp Thr Gly Ala Leu Trp
    690   695   700

Ala Ala Leu Arg Ala Leu Cys Lys Asn Ala Leu Gly Lys His His Tyr
705   710   715   720

Pro His Leu Phe Val Glu Val Ser Thr Ile Pro Arg Thr Cys Ser Gly
            725   730   735

Lys Val Ile Arg Pro Ala Leu Leu Glu Thr Leu Ala Ser Ala Lys His
            740   745   750

Leu Gln Ser His Leu Phe Phe Val Gly His Ala Arg Thr

755   760   765

<210>   33
<211>   330
<212>   PRT
<213>   Xanthomonas albilineans

<400>   33

Met His Thr Asn Ala Asp Leu Pro Leu Thr Ile Lys Ala Asp Ser Ala
1   5   10   15

Glu Ala Thr Leu Thr Asp Trp Asn Ala Thr His Arg Ala Thr Trp Pro
                20   25   30

Thr Leu Leu Trp Gln His Arg Ala Leu Leu Phe Arg Gly Phe Ala His
            35   40   45

Pro Gly Gly Leu Glu Gln Ile Ser Arg Cys Phe Phe Asp Glu Arg Leu
        50   55   60

Ala Tyr Thr Tyr Arg Ser Thr Pro Arg Thr Asp Val Gly Gln His Val
65   70   75   80

Tyr Thr Ala Thr Glu Tyr Pro Arg Gln Leu Ser Ile Ala Gln His Cys
                85   90   95

Glu Asn Ala Tyr Gln Arg Val Trp Pro Met Lys Leu Leu Phe His Cys
            100   105   110

Val Gln Pro Ala Ser Glu Gly Gly Cys Thr Pro Leu Ala Asp Met Leu
        115   120   125

Lys Val Thr Ala Ala Ile Asp Pro Gln Val Arg Glu Ile Phe Ala Arg
    130   135   140

Lys Gln Val Arg Tyr Val Arg Asn Tyr Arg Ala Gly Val Asp Leu Pro
145   150   155   160

Trp Glu Asp Val Phe Asn Thr Arg Asn Lys Gln Glu Val Glu Ala Tyr
                165   170   175

Cys Ala Arg Asn Asp Met Gln Cys Glu Trp Thr Gly Asp Gly Leu Arg
            180   185   190

Thr Ser Gln Ile Cys Arg Ala Phe Ala Cys His Pro Ala Thr Gly Asp
            195   200   205

Glu Val Trp Phe Asn Gln Ala His Leu Phe His Tyr Thr Ala Leu Glu
    210   215   220

Ala Ala Ala Gln Lys Met Met Leu Ser Phe Phe Gly Glu Gln Gly Leu
225   230   235   240

Pro Arg Asn Ala Tyr Phe Gly Asp Gly Thr Pro Ile Asp Pro Ala Met
            245   250   255

Leu Asp His Val Arg Thr Val Phe Ala Gln His Lys Ile His Phe Asp
            260   265   270

Trp His Arg Asp Asp Val Leu Leu Ile Asp Asn Met Leu Val Ser His

```
                275                    280                    285

Gly Arg Glu Pro Tyr Glu Gly Ser Arg Lys Ile Leu Val Cys Met Ala
    290                 295                 300

Glu Pro Tyr Ser Pro Glu Gln Ser Ser Pro Asp Ile Ala Ala Arg Ser
305                     310                 315                 320

Asp Gly Glu Ala Met Leu Lys Leu His Val
                325                 330
```

<210> 34
<211> 1959
<212> PRT
<213> Xanthomonas albilineans

<400> 34

```
Met Lys Leu Ser Ser Met Ser Leu Leu Asp Ala Glu Asp Val Ala Leu
1               5                   10                  15

Thr Ala Ala Ser Pro Asp Thr Ala Leu Ala Leu Asp Trp Ser Arg Ser
            20                  25                  30

Val Leu Asp Leu Phe Asp Ala Gln Val Ala Leu His Ala Glu Glu Leu
        35                  40                  45

Ala Cys Ala Asp Gln His Arg Gln Leu Ser Tyr Ala Gln Leu Asp Gln
    50                  55                  60

His Ala Asn Arg Leu Ala His Cys Leu Ile Glu Arg Gly Leu Arg Pro
65                  70                  75                  80

Gln Glu Arg Val Ala Leu Trp Phe Gly Arg Ser Pro Asp Phe Leu Ile
            85                  90                  95

Ala Leu Leu Gly Val Leu Lys Ala Gly Gly Cys Tyr Val Pro Leu Asp
            100                 105                 110

Pro His Tyr Pro Thr Thr Tyr Ile Gln Gln Ile Leu Asp Asp Ala Gln
            115                 120                 125

Pro Arg Leu Leu Leu Cys Gly Lys Asp Ile Asp Gly Gln Leu Ile Gln
    130                 135                 140

Val Pro Arg Leu Arg Leu Asp Asp Ala Ala Ile Ala Arg Gln Pro His
145                 150                 155                 160

Thr Pro Leu Pro His Ala Leu His Pro Ala Gln Leu Ala Tyr Val Met
                165                 170                 175

Tyr Thr Ser Gly Ser Thr Gly Arg Pro Lys Gly Val Met Val Pro His
            180                 185                 190

Arg Gln Ile Leu Asn Trp Leu His Ala Leu Trp Ala Arg Ala Pro Phe
            195                 200                 205

Glu Ala Gly Glu Arg Val Ala Gln Lys Thr Ser Ile Ala Phe Ala Ile
    210                 215                 220
```

```
Ser Val Lys Glu Leu Leu Ala Gly Leu Leu Ala Gly Val Pro Gln Val
225             230             235             240

Phe Ile Asp Glu Asp Thr Val Arg Asp Ile Pro Ala Phe Val Arg Ala
            245             250             255

Leu Glu Thr Trp Gln Ile Thr Arg Leu Tyr Thr Phe Pro Ser Gln Leu
            260             265             270

Asn Ala Leu Leu Asp His Val Ala Glu Thr Pro Gln Arg Leu Ala Arg
            275             280             285

Leu Arg Gln Leu Phe Val Ser Ile Glu Pro Cys Pro Ala Glu Leu Leu
    290             295             300

Gln Arg Leu Arg Thr Leu Leu Pro Ala Cys Thr Ala Trp Tyr Ile Tyr
305             310             315             320

Gly Cys Thr Glu Ile Asn Asp Met Thr Tyr Cys Asp Pro Ala Glu Gln
            325             330             335

His Ser Gly Ser Gly Phe Val Pro Val Gly Arg Pro Ile Ala Asn Thr
            340             345             350

Lys Val His Val Leu Asp Glu Gln Leu Arg Pro Leu Pro Pro Gly Ile
            355             360             365

Met Gly Glu Val His Ile Glu Ser Leu Gly Ile Thr His Gly Tyr Trp
    370             375             380

Arg Gln Gly Gly Leu Thr Ala Ala Arg Phe Ile Ala Asn Pro Tyr Gly
385             390             395             400

Pro Pro Gly Ser Arg Leu Tyr Arg Thr Gly Asp Met Ala Arg Leu Leu
            405             410             415

Asp Asn Gly Thr Leu Glu Leu Leu Gly Arg Arg Asp Tyr Glu Val Lys
            420             425             430

Val Arg Gly Tyr Arg Val Asp Val Arg Gln Val Glu Lys Ala Leu Ala
    435             440             445

Ala His Leu Gln Val Ala Glu Ala Ala Val Ile Gly Trp Pro Gln Gly
    450             455             460

Ser Pro Thr Pro Glu Leu Leu Ala Tyr Val Val Pro Arg Gln Gly Val
465             470             475             480

Leu Asn Leu Asp Glu Leu Arg Lys Leu Leu Gln Glu Arg Leu Pro Thr
            485             490             495

Tyr Met Leu Pro Thr Arg Phe Gln Ser Leu Pro Ala Leu Pro Arg Leu
            500             505             510

Pro Asn Gly Lys Leu Asp Thr Leu Ser Leu Pro Glu Pro Gln Ala Ala
            515             520             525

Ser Ser Asp Ser Asp Tyr Leu Ala Pro Arg Ser Glu Val Glu Ile Thr
    530             535             540

Leu Ala Lys Leu Trp Ser Glu Leu Leu Thr Pro Ala Gln Ala Ala Pro
```

```
545                    550                    555                    560

Leu Arg Val Ser Leu Asn Asp Asn Phe Phe Asn Leu Gly Gly His Ser
                565                    570                    575

Leu Leu Ala Thr Gln Leu Phe Ser Arg Ile Arg Gln Ser Phe Asp Ile
                580                    585                    590

Glu Val Arg Val Asn Thr Leu Phe Glu Ser Pro Val Leu Glu Asp Phe
                595                    600                    605

Ala Arg Val Val Asn Glu Ala Arg Gln Gln Gln Ala Pro Thr Gly Gly
    610                    615                    620

Asn Thr Ile Ser Ser Arg Ala Val Arg Asp Ala Pro Val Pro Leu Ser
625                    630                    635                    640

Tyr Gln Gln Glu Arg Leu Trp Phe Val His Glu His Met Pro Glu Gln
                645                    650                    655

Arg Thr Ser Tyr Asn Val Ala Phe Ala Cys His Leu Arg Ser Ala Asp
                660                    665                    670

Phe Ser Met Ser Ala Leu Arg Glu Ala Ile Gln Ala Leu Val Ala Arg
                675                    680                    685

His Glu Thr Leu Arg Thr Arg Ile Ala Thr Cys Ala Gly Gly Asp Tyr
    690                    695                    700

Pro Ser Gln His Ile Ala Asp Ala Met Gln Val Pro Val Pro Cys Ile
705                    710                    715                    720

Thr Ala Thr Pro Ala Glu Val Pro Arg Leu Val Ala Glu His Ala Ala
                725                    730                    735

His Val Phe Asp Leu Ala His Gly Pro Leu Leu Lys Val Ser Val Leu
                740                    745                    750

Arg Val Ser Asp Asp Tyr His Val Phe Leu Met Asn Met His His Ile
                755                    760                    765

Ile Cys Asp Gly Trp Ser Ile Asn Leu Ile Phe His Asp Leu Arg Ala
    770                    775                    780

Phe Tyr Ile Ala Ala Leu Gln Gln Thr Pro Pro Ala Leu Pro Pro Leu
785                    790                    795                    800

Leu Leu Gln Tyr Ala Asp Tyr Ala Thr Trp Gln Arg Val Gln Asp Phe
                805                    810                    815

Ser Ala Asp Leu Asp Tyr Trp Lys Gln Arg Leu His Gly Tyr Glu Glu
                820                    825                    830

Gly Leu Ala Leu Pro Tyr Asp Phe Pro Arg Pro Ala Asn Arg Ala Trp
                835                    840                    845

Arg Ala Gly Ile Leu His Leu Thr Tyr Pro Asp Ala Leu Ala Ala Arg
    850                    855                    860

Leu Ala Ala Phe Ser Gln Glu Arg Arg Val Thr Leu Phe Met Thr Leu
865                    870                    875                    880
```

```
Met Ala Ser Leu Ala Ile Val Leu His Gln Tyr Thr Gly Arg Arg Glu
            885                 890                 895

Leu Cys Leu Gly Thr Thr Ser Ala Gly Arg Asp Gln Leu Glu Thr Glu
            900                 905                 910

Asn Leu Ile Gly Phe Phe Val Asn Ile Leu Ala Val Arg Leu Asn Leu
            915                 920                 925

Gly Ser His Ala Phe Ala Glu Asp Phe Leu Gln His Val Arg Gln Gln
    930                 935                 940

Val Leu Asp Ala Tyr Ala His Arg Ala Leu Pro Phe Glu His Val Leu
945                 950                 955                 960

Ser Ala Leu Lys Lys Pro Arg Asp Ser Ser Gln Ile Pro Leu Val Pro
            965                 970                 975

Ile Met Leu Arg His Gln Asn Phe Ala Thr Glu Gly Val Asn Ala Phe
            980                 985                 990

Ala Gln Ile Phe Leu Ser Ala Gln  Met Glu Phe Gly Glu  Arg Thr Thr
            995                 1000                1005

Pro Asn  Glu Leu Asp Leu Gln  Phe Ile Gly Asp Gly  Ser His Leu
    1010                1015                1020

Glu Val  Thr Val Glu Tyr Ala  Ala Glu Leu Phe Ser  Ala Ala Thr
    1025                1030                1035

Val Gln  Arg Met Leu Ala His  His Gln Arg Val Leu  Glu Arg Met
    1040                1045                1050

Leu Glu  Glu Pro Arg Cys Arg  Leu Ser Asp Phe Ser  Leu Pro Val
    1055                1060                1065

Ala Arg  Thr Glu Phe Thr Pro  His Thr Leu Asp Thr  Ser Arg Ser
    1070                1075                1080

Val Leu  Asp Leu Phe Asp Ala  Gln Val Ala Leu His  Ala Glu Glu
    1085                1090                1095

Leu Ala  Cys Ala Asp Gln His  Arg Gln Leu Ser Tyr  Ala Gln Leu
    1100                1105                1110

Asp Gln  His Ala Asn Arg Leu  Ala His Cys Leu Ile  Glu Arg Gly
    1115                1120                1125

Leu Arg  Pro Gln Glu Arg Val  Ala Leu Trp Phe Gly  Arg Ser Pro
    1130                1135                1140

Asp Phe  Leu Ile Ala Leu Leu  Gly Val Leu Lys Ala  Gly Gly Cys
    1145                1150                1155

Tyr Val  Pro Leu Asp Pro His  Tyr Pro Thr Thr Tyr  Ile Gln Gln
    1160                1165                1170

Ile Leu  Asp Asp Ala Gln Pro  Arg Leu Leu Leu Cys  Gly Lys Asp
    1175                1180                1185
```

```
Ile Asp  Gly Gln Leu Ile Gln  Val Pro Arg Leu Arg  Leu Asp Asp
    1190                1195            1200
```

```
Ala Ala  Ile Ala Arg Gln Pro  His Thr Pro Leu Pro  His Ala Leu
    1205                1210            1215
```

```
His Pro  Ala Gln Leu Ala Tyr  Val Met Tyr Thr Ser  Gly Ser Thr
    1220                1225            1230
```

```
Gly Arg  Pro Lys Gly Val Met  Val Pro His Arg Gln  Ile Leu Asn
    1235                1240            1245
```

```
Trp Leu  His Ala Leu Trp Ala  Arg Ala Pro Phe Glu  Ala Gly Lys
    1250                1255            1260
```

```
Arg Val  Ala Gln Lys Thr Ser  Ile Ala Phe Ala Ile  Ser Val Lys
    1265                1270            1275
```

```
Glu Leu  Leu Ala Gly Leu Leu  Ala Gly Val Pro Gln  Val Phe Ile
    1280                1285            1290
```

```
Asp Glu  Asp Thr Val Arg Asp  Ile Pro Ala Phe Val  Arg Ala Leu
    1295                1300            1305
```

```
Glu Thr  Trp Gln Ile Thr Arg  Leu Tyr Thr Phe Pro  Ser Gln Leu
    1310                1315            1320
```

```
Asn Ala  Leu Leu Asp His Val  Ala Glu Thr Pro Gln  Arg Leu Ala
    1325                1330            1335
```

```
Arg Leu  Arg Gln Leu Phe Val  Ser Ile Glu Pro Cys  Pro Ala Glu
    1340                1345            1350
```

```
Leu Leu  Gln Arg Leu Arg Thr  Leu Leu Pro Ala Cys  Thr Ala Trp
    1355                1360            1365
```

```
Tyr Ile  Tyr Gly Cys Thr Glu  Ile Asn Asp Met Thr  Tyr Cys Asp
    1370                1375            1380
```

```
Pro Ala  Glu Gln His Ser Gly  Ser Gly Phe Val Pro  Val Gly Arg
    1385                1390            1395
```

```
Pro Ile  Ala Asn Thr Lys Val  His Val Leu Asp Glu  Gln Leu Arg
    1400                1405            1410
```

```
Pro Leu  Pro Pro Gly Ile Met  Gly Glu Val His Ile  Glu Ser Leu
    1415                1420            1425
```

```
Gly Ile  Thr His Gly Tyr Trp  Arg Gln Gly Gly Leu  Thr Ala Ala
    1430                1435            1440
Arg Phe  Ile Ala Asn Pro Tyr  Gly Pro Pro Gly Ser  Arg Leu Tyr
    1445                1450            1455
```

```
Arg Thr  Gly Asp Met Ala Arg  Leu Leu Asp Asn Gly  Thr Leu Glu
    1460                1465            1470
```

```
Leu Leu  Gly Arg Arg Asp Tyr  Glu Val Lys Val Arg  Gly Tyr Arg
    1475                1480            1485
```

```
Val Asp  Val Arg Gln Val Glu  Lys Ala Leu Ala Ala  His Leu Gln
    1490                1495            1500
```

Val Ala Glu Ala Ala Val Ile Gly Trp Pro Gln Gly Ser Pro Thr
    1505   1510   1515

Pro Glu Leu Leu Ala Tyr Val Val Pro Arg Gln Gly Val Leu Asn
    1520   1525   1530

Leu Asp Glu Leu Arg Lys Leu Leu Gln Glu Arg Leu Pro Thr Tyr
    1535   1540   1545

Met Leu Pro Thr Arg Phe Gln Ser Leu Pro Ala Leu Pro Arg Leu
    1550   1555   1560

Pro Asn Gly Lys Leu Asp Thr Leu Ser Leu Pro Glu Pro Gln Ala
    1565   1570   1575

Ala Ser Ser Asp Ser Asp Tyr Leu Ala Pro Arg Ser Glu Val Glu
    1580   1585   1590

Ile Thr Leu Ala Lys Leu Trp Ser Glu Leu Leu Thr Pro Ala Gln
    1595   1600   1605

Ala Ala Pro Leu Arg Val Ser Leu Asn Asp Asn Phe Phe Asn Leu
    1610   1615   1620

Gly Gly His Ser Leu Leu Ala Thr Gln Leu Phe Ser Arg Ile Arg
    1625   1630   1635

Gln Ser Phe Asp Ile Glu Val Arg Val Asn Thr Leu Phe Glu Ser
    1640   1645   1650

Pro Val Leu Glu Asp Phe Ala Ala Val Val Glu Arg Gly Met Arg
    1655   1660   1665

Gln Ser Gln Ala Gly Ser Met Pro Val Ser Leu Ile Val Pro Leu
    1670   1675   1680

Ser Leu Arg Thr Glu Arg Ala Ala Val Tyr Ala Ile His Pro Ile
    1685   1690   1695

Gly Gly Gln Ile His Cys Tyr Ile Asp Leu Ala Ala Ala Leu Gly
    1700   1705   1710

His Ser Ala Arg Val Tyr Gly Leu Gln Cys Glu Pro Val Arg Arg
    1715   1720   1725

Phe Ala His Leu Ser Asp Leu Ala Ala His Tyr Cys Asp Ala Leu
    1730   1735   1740

Leu Ala Gly Pro Thr Gly Ala Pro Tyr Arg Leu Leu Gly Trp Ser
    1745   1750   1755

Ser Gly Gly Val Leu Ala Leu Ala Val Ala Glu Gln Leu Gln Arg
    1760   1765   1770

Arg Gly Leu Arg Val Asp Tyr Val Gly Leu Leu Asp Ser Ser Leu
    1775   1780   1785

Ile Pro Val His Ala Arg Glu Pro Arg Gln Leu Thr Phe Val Ala
    1790   1795   1800

```
Ala Leu  Asn Thr Leu Ala Ala  Leu Ala Lys Arg Gly  Phe Glu Gln
    1805             1810              1815

Ala Glu  Ile Asp Glu Ala Arg  Gln Leu Leu Phe Ala  Asp Gly Asp
    1820             1825              1830

Asp Glu  His Val Phe Asp Tyr  Ser Arg His Gln Ala  Ser Leu Asp
    1835             1840              1845

Lys Leu  Leu Ala His Leu Arg  Phe Thr Leu Glu Ser  Arg Met Trp
    1850             1855              1860

Pro Pro  Leu Ala Glu Gln Leu  Arg Val Thr Arg Tyr  His Leu Gly
    1865             1870              1875

Leu Leu  Ala Gly Phe Glu Pro  Gln Cys Leu Gln Pro  Asn Ala His
    1880             1885              1890

Leu Tyr  Gln Ala Gln Thr Ala  Val His Val Ser Tyr  Ala Asp Met
    1895             1900              1905

Ser Lys  Pro Arg Gly Gly Ser  Glu Val Leu Pro Asp  Ile Thr Gly
    1910             1915              1920

Tyr Val  Pro Leu Ser Gln Ile  Lys Ser Ala Ala Gly  Asn His Tyr
    1925             1930              1935

Ser Met  Leu Gln Gly Asp Pro  Leu Arg Glu Leu Ala  Arg Met Leu
    1940             1945              1950

Val Thr  Asp Leu Asp Ala
    1955
```

```
<210>  35
<211>  83
<212>  PRT
<213>  Xanthomonas albilineans

<400>  35

Met Thr Phe Glu Glu Gln Ala Tyr Leu Val Leu Ile Asn Asp Glu Leu
1               5               10              15

Gln Tyr Ser Leu Trp Pro Ser Asp Leu Glu Val Pro Pro Gly Trp Arg
            20              25              30

Lys Glu Gly Tyr Ala Gly Gly Lys Asp Glu Cys Met Ala Tyr Ile Asp
            35              40              45

Glu Thr Trp Thr Asp Met Arg Pro Leu Ser Leu Arg Glu Leu Asp Asp
    50              55              60

Lys Asn Leu Gly Asp Ala Ser Ser Pro Asp Gly Ser Gly Phe Glu Ser
65              70              75              80

Ser Tyr Ser
```

```
<210>  36
```

```
<211>   315
<212>   PRT
<213>   Xanthomonas albilineans

<400>   36

Met Gly Cys Ala Cys Leu Pro His Tyr Leu Glu Lys Gln Asp Leu Ser
1               5                   10                  15

Ala Leu Asp Asp Ala Leu Ala Gly Val Arg Leu Ser Gln Tyr Cys Thr
            20                  25                  30

Thr Asp Gly Arg Gln Leu Glu Leu Tyr Trp Leu Gly Ala Gln Ala Ser
            35                  40                  45

Pro Lys Leu Val Leu Leu Pro Pro Tyr Gly Met Ser Tyr Leu Leu Leu
        50                  55                  60

Ser Arg Leu Ala Gln Arg Leu Ala Arg His Phe His Val Leu Cys Trp
65              70                  75                  80

Glu Ser Ile Gly Cys Pro Asn Ala Gln Thr Ser Val Thr Ala Glu Asp
                85                  90                  95

Phe Asp Leu Asp Arg Gln Ala Ala Thr Leu Leu Gly Ile Leu His Gln
            100                 105                 110

His Asp Tyr Ala Asp Cys His Phe Val Gly Trp Cys Gln Ala Ala Gln
            115                 120                 125

Leu Ala Val His Ala Ile Ala Leu His Gly Phe Ala Pro Arg Ser Met
    130                 135                 140

Ala Trp Val Ala Pro Ala Gly Leu Leu Pro Pro Ile Val Lys Ser Glu
145                 150                 155                 160

Phe Glu Arg Cys Ala Leu Pro Ile Tyr Leu Gln Ile Glu Arg His Gly
                165                 170                 175

Leu Glu Gln Ala Lys Lys Leu Ala Ala Ile Leu Asp Lys Tyr Arg Gly
                180                 185                 190

Gln Pro Leu Arg Gly Asp Asp Leu Ala Glu Lys Leu Thr Met Leu His
        195                 200                 205

Leu Ala Asp Pro Ala Ser Thr Leu Val Phe Ser Arg Tyr Met Arg Ala
    210                 215                 220

Tyr Glu Glu Asn Lys Gln Ser Val Gln Ala Leu Leu Pro Thr Ala Leu
225                 230                 235                 240

Gly Arg His Pro Thr Leu Ile Val His Cys Lys Asp Asp Ser Phe Ser
                245                 250                 255

His Tyr Ser Ala Ser Val Gln Leu Ala Arg His Asp Pro Ser Leu Arg
            260                 265                 270

Leu Asp Leu Leu Asp His Gly Gly His Leu Gln Leu Phe Asn Asp Pro
        275                 280                 285

Gly Ala Val Ala Gln Arg Ile Ile Asp Phe Ile Gly Leu Thr Val Gly
```

```
        290                    295                    300
```

Glu Val Ala Pro Thr Ser Met His Ser Ala Ala
305   310   315

<210> 37
<211> 451
<212> PRT
<213> Xanthomonas albilineans

<400> 37

Met Tyr Ile Pro Asn Asn Ile Asp Leu Asp Pro His Ser Ala Leu Val
1   5   10   15

Arg Gln Leu Thr Ser Tyr Gln Val Arg Phe Leu Gln Trp Trp Arg Leu
            20   25   30

Arg Gly Pro Ser Glu Phe His Asp Arg Glu Met Asn Leu Arg Met Pro
        35   40   45

Thr Gly Gly Val Lys Gly Ser Glu Trp Thr Arg Tyr His Arg Met Arg
    50   55   60

Pro Ser Asp Tyr Arg Trp Gly Val Phe Met Met Pro Pro Asp Arg Asn
65   70   75   80

Thr Val Val Phe Gly Glu Arg Lys Gly Gln Val Ala Trp Ser Cys Val
            85   90   95

Pro Glu Glu Tyr Arg Asp Leu Leu Leu Asp His Val Thr Val Gln Gly
            100   105   110

Asp Val Glu Asn Ala Ala Val Glu Gln Ser His Glu Leu Thr Gln Met
            115   120   125

Val Pro Ser Ala Ile Asp Leu Glu His Leu Phe Gln Phe Phe Leu Glu
    130   135   140

Glu Gly Arg His Thr Trp Ala Met Ser His Leu Leu Ile Glu Tyr Phe
145   150   155   160

Gly Ser Asp Gly Ala Asp Ala Ala Glu Gly Leu Leu Gln Arg Met Ser
            165   170   175

Gly Asp Ala Gln Asn Pro Arg Leu Leu Asp Ala Phe Asn Tyr His Thr
            180   185   190

Glu Asp Trp Leu Ser His Phe Met Trp Cys Phe Phe Ala Asp Arg Val
        195   200   205

Gly Lys Tyr Gln Ile Gln Ala Val Thr Gln Ser Ala Phe Leu Pro Leu
    210   215   220

Ala Arg Thr Ala Arg Phe Met Met Phe Glu Glu Pro Leu His Ile Lys
225   230   235   240

Phe Gly Val Asp Gly Leu Glu Arg Val Leu Tyr Arg Ser Ala Glu Ile
            245   250   255

```
Thr Leu Arg Glu Asp Thr His Ala Ile Phe Asp Ala Gly Ala Ile Pro
            260             265             270

Leu Pro Val Val Gln Lys Tyr Leu Asn Tyr Trp Leu Pro Lys Ile Phe
        275             280             285

Asp Leu Phe Gly His Asp Val Ser Glu Arg Ser Arg Val Leu Tyr Gln
    290             295             300

Ala Gly Ile Arg Ser Pro Arg Asn Phe Asp Lys Leu Glu Gly Thr Glu
305             310             315             320

Val Ala Val Asp Val Arg Cys Glu Asp Arg Leu Val Ser Ser Thr Ala
            325             330             335

Pro Ala Glu Leu Ala Ile Asn Ala Val Met Arg Arg Gln Tyr Ile Ala
            340             345             350

Glu Val Gly Ala Ile Ile Gly Arg Trp Asn Gln Gln Leu Arg Arg Leu
            355             360             365

Gly Leu Ala Phe Glu Leu Gln Leu Pro His Glu Arg Phe His Arg Asp
    370             375             380

Phe Gly Pro Cys Lys Gly Leu Ala Phe Asp Leu Asp Gly Asn Pro Val
385             390             395             400

His Asp Ala Asp Gly Gln Arg Leu Ala Ala Leu Leu Pro Thr Pro Gln
            405             410             415

Asp Leu Ala Gly Val Arg Gly Leu Met Gly Arg Glu Leu Gly Glu Gly
            420             425             430

Arg Thr Ala Val Trp Leu Ala Pro Ala Gly Ala Ser Leu Asp Lys Leu
        435             440             445

Met Pro Ala
    450


<210>  38
<211>  317
<212>  PRT
<213>  Xanthomonas albilineans

<400>  38

Met Asn Ser Tyr Val Gly Cys Gln Lys Leu Glu Thr Asp Gly Asp Ala
1               5               10              15

Ser Arg Val Val Pro Met Trp Val Met Tyr Pro Thr Ala Thr Pro Ser
            20              25              30

Arg Asp Thr Ala Met Gly Pro Tyr Thr Leu Asp Val Ala Leu Gly Ala
        35              40              45

Pro Ile Glu Ala Gly Pro Phe Pro Leu Ala Val Ile Ser His Gly Thr
    50              55              60

Arg Ser Ala Gly Leu Val Phe Arg Thr Leu Ala His Tyr Leu Ala Arg
65              70              75              80
```

```
His Gly Phe Ile Val Ala Leu Pro Glu His Pro Gly Asp Asn Leu Phe
                 85              90                  95

Gln His Gln Leu Glu Tyr Ser Tyr Gln Asn Leu Glu Asp Arg Pro Arg
            100             105             110

His Ile Arg Ala Val Ile Asp Thr Leu Thr Gly His Ala Gln Phe Gly
        115             120             125

Pro Ala Ile Gln Ala His Asn Val Ala Val Ile Gly His Ser Val Gly
    130             135             140

Gly Tyr Thr Ala Leu Ala Ile Ala Gly Gly Glu Pro His Thr Gly Phe
145             150             155             160

Met Val Asp Phe Ala His Arg Pro Glu His Ala Glu Gln Pro Ala Trp
            165             170             175

Thr Ala Leu Val Arg Gln Asn Arg Val Pro Ile Arg Ala Val Pro Val
            180             185             190

Thr Ala Asp Pro Arg Val Arg Ala Val Val Ala Leu Ala Pro Asp Phe
        195             200             205

Ser Leu Tyr Met His Glu Asp Ala Leu Ala Lys Val Glu Val Pro Val
    210             215             220

Leu Leu Ile Val Gly Glu Lys Asp Gln Trp Ala His Glu Thr Ile Val
225             230             235             240

Ala Thr Arg Thr Ala Leu Gly Asn Asp Gly Arg Leu Glu Ala Arg Val
            245             250                 255

Val Pro Asn Ala Gly His Tyr Ala Phe Ile Ser Val Phe Pro Glu Ala
            260             265             270
Met Lys Ala Arg Val Gly Glu Ala Ala Ile Asp Pro Pro Gly Phe Asp
        275             280             285

Arg Ser Ala Phe Gln Arg Glu Leu Glu Arg Asp Ile Leu His Phe Leu
    290             295             300

Thr Val Thr Met Arg Pro Ala Glu Ala Ala Ile Ser Gly
305             310             315
```

```
<210>   39
<211>   496
<212>   PRT
<213>   Xanthomonas albilineans

<400>   39

Met Gln Lys Pro Lys Glu Ala Leu Gly Met Pro Pro Gly Met Ala Pro
1               5               10              15

Pro Gly Ala Gln Phe Asp Tyr Arg Trp Arg Trp Pro Ala Met Ile Val
            20              25              30

Leu Leu Ser Ala Asn Phe Met Asn Leu Leu Asp Val Gly Ile Val Asn
        35              40              45
```

Val Ala Leu Pro Ser Ile Gln Lys Asn Leu Gly Ala Asp Glu Gln Gln
    50   55   60

Leu Glu Trp Ile Val Ala Ile Tyr Ile Leu Leu Phe Ala Leu Gly Leu
65   70   75   80

Leu Pro Leu Gly Arg Leu Gly Asp Met Leu Gly Arg Lys Arg Met Phe
                85   90   95

Gly Thr Gly Val Ala Gly Phe Ile Leu Met Ser Ala Phe Cys Ala Ile
            100   105   110

Ala Gly Asn Ile His Val Leu Ile Ile Ala Arg Ala Leu Gln Gly Leu
            115   120   125

Ala Ala Ala Met Leu Ala Pro Gln Val Met Ala Ile Ala Gln Thr Met
    130   135   140

Phe Ala Pro Lys Glu Arg Ala Ala Ala Phe Ser Leu Phe Gly Leu Val
145   150   155   160

Ala Gly Leu Ala Ser Phe Ala Gly Pro Leu Val Ser Gly Leu Leu Ile
                165   170   175

His Ile Asp Ala Phe Gly Val Gly Trp Arg Ala Ile Phe Leu Ile Asn
            180   185   190

Val Pro Ile Gly Leu Val Thr Leu Leu Ala Ala Ala Ile Trp Val Pro
    195   200   205

Lys Val Pro Ala His Ala Gly Ile His Asn Asp Trp Val Gly Ile Ala
    210   215   220

Leu Ala Ala Leu Ala Leu Leu Cys Leu Val Phe Pro Leu Ile Glu Gly
225   230   235   240

Arg Ala Tyr Gly Trp Pro Leu Trp Cys Phe Ala Ala Ile Ala Leu Gly
                245   250   255

Ile Pro Leu Leu Val Ala Phe Val Ala Trp Gln Arg Arg Gln Ala His
            260   265   270

Leu Ala Arg Pro Ala Leu Leu Pro Ile Tyr Leu Met Ser His Arg Asp
            275   280   285

Tyr Ile Leu Gly Ala Leu Ser Val Ser Val Phe Tyr Ser Ala Leu Gln
    290   295   300

Gly Phe Phe Leu Val Phe Val Ile Phe Leu Gln Gln Gly Leu Ala Tyr
305   310   315   320

Ser Ala Leu Glu Thr Gly Val Ala Thr Thr Pro Phe Pro Val Gly Val
                325   330   335

Ala Ile Ala Ser Met Leu Ala Arg His Val Glu Ser Leu Arg Ala Lys
            340   345   350

Ile Phe Ser Gly Ala Cys Leu Met Ile Ala Ser Tyr Leu Ala Leu Trp
            355   360   365

Val Ile Ile Thr Arg Ser Glu Gly Ser Leu Asp Pro Trp Thr Leu Thr
    370   375   380

Leu Pro Leu Leu Ile Gly Gly Leu Gly Cys Gly Ile Thr Ile Ala Ser
385   390   395   400

Leu Phe Gln Thr Val Met Arg Thr Val Pro Leu Lys Asp Ala Gly Ala
            405   410   415

Gly Ser Gly Ala Leu Gln Val Ile Gln Gln Val Gly Gly Met Leu Gly
            420   425   430

Ile Ala Leu Val Ser Glu Ile Phe Phe Ser Gly Leu His Gln His Leu
            435   440   445

Gln Gly Pro Ala Gly Val Ala Leu Ala Phe Lys Gln Ala Phe Gly Ala
    450   455   460

Thr Val Val Tyr Tyr Ile Ala Ala Asn Ala Phe Val Ala Leu Ser Thr
465   470   475   480

Leu Gly Leu Gln Phe Lys Leu Thr Gln Phe Ala Pro Gln Ser Ser Pro
            485   490   495

<210>   40
<211>   584
<212>   PRT
<213>   Xanthomonas albilineans

<400>   40

Met Lys Arg Thr Tyr Ile Gly Leu Ala Asn Ser Phe His Asp Ser Ala
1   5   10   15

Ile Ala Ile Val Gly Asp Asp Gly Gln Val Arg Phe Ala Glu Ala Thr
            20   25   30

Glu Arg Tyr Leu Gln Tyr Lys Arg Ser Ile Gly Val Ala Pro Asp Val
            35   40   45

Phe Gln Arg Ala Ile Lys Leu Val His Glu Tyr Gly Asp Pro Gly Ala
    50   55   60

Glu Leu Val Val Ala Thr Ser Trp Ser Gly Gln Thr Pro Glu Leu Met
65   70   75   80

Arg Glu Gly Leu Gly Lys Thr Ala Gln Ala Val Asp Gln Tyr Arg Ser
            85   90   95

Ala Phe Gly Asp Leu Pro Trp His Val Asn Lys Gln Phe Val Ala Gln
            100   105   110

Ser Phe Phe Tyr Arg Ser Gln Leu Ala Met Val Glu His Pro Gly His
    115   120   125

Leu Leu Glu Tyr Asp Leu Ser His Met Ala Glu Pro Ala Phe Lys Pro
    130   135   140

Pro Ser Tyr Arg His Tyr Glu His His Leu Thr His Ala Val Ala Gly
145   150   155   160

```
Cys Tyr Thr Ser Pro Phe Glu Glu Ala Val Cys Ala Val Leu Asp Gly
                165             170             175

Met Gly Glu Lys Asn Ala Leu Ala Cys Tyr His Tyr Gln Gln Gly Lys
            180             185             190

Leu Thr Pro Ile His Gln Ser Glu Thr Ser Ser Trp Ala Ser Leu Gly
            195             200             205

Phe Phe Tyr Gly Met Ile Cys Glu Val Cys Gly Phe Gly Thr Leu Ser
    210             215             220

Gly Glu Glu Trp Lys Val Met Gly Leu Ala Ala Tyr Gly Gln His Asp
225             230             235             240

Arg Gln Leu Tyr Glu Leu Leu Arg Gln Met Leu Arg Val Asp Gly Leu
            245             250             255

Thr Leu Arg Phe Ala Pro Ala Ala Gln Phe Ser Gln Leu Gln Arg Thr
            260             265             270

Leu Tyr Ala Met Arg Arg Cys Lys Gly Gln Pro Thr Ile Glu Leu Ala
            275             280             285

Asn Leu Ala Tyr Ala Gly Gln Gln Val Phe Cys Asp Val Leu Phe Glu
    290             295             300

Phe Leu His Asn Leu His Ala Leu Gly Leu Ser Asp His Leu Val Leu
305             310             315             320

Gly Gly Gly Cys Ala Leu Asn Ser Ser Ala Asn Gly Arg Val Leu Ala
            325             330             335

Glu Thr Pro Phe Arg His Leu His Val Phe Ala Ala Pro Gly Asp Asp
            340             345             350

Gly Asn Ala Val Gly Ala Ala Leu Trp Ala His Ala Glu Asp His Pro
    355             360             365

Glu Gln Thr Pro Pro Ala Ala Arg Glu Gln Ser Pro Tyr Leu Gly Ser
    370             375             380

Ser Met Ser Ala Glu Thr Leu His Asn Val Glu Arg Phe Gly Ala Leu
385             390             395             400

Ser Lys Phe Thr Arg Cys Leu Asp Asp Ala Ala Gln Arg Ala Ala Arg
            405             410             415

Leu Leu Thr Glu Gly Lys Ile Val Ala Trp Val Gln Gly Arg Ala Glu
            420             425             430

Phe Gly Pro Arg Ala Leu Gly Asn Arg Ser Ile Leu Ala Asp Pro Arg
            435             440             445

Ser Pro Ala Ile Lys Asp Ile Ile Asn Ala Arg Val Lys Phe Arg Glu
    450             455             460

Glu Phe Arg Pro Phe Ala Pro Ser Ile Leu His Glu His Gly Ala Glu
465             470             475             480
```

```
Tyr Phe Glu Leu Tyr Gln Glu Ser Pro Tyr Met Glu Arg Thr Leu Lys
            485             490             495

Phe Arg Ala Glu Ala Thr Arg Lys Val Pro Gly Val Val His His Asp
            500             505             510

Gly Thr Gly Arg Leu Gln Thr Val Lys Gln His Trp Asn Pro Arg Tyr
            515             520             525

His Ala Leu Ile Lys Glu Phe Tyr Arg Leu Thr Gly Ile Pro Leu Val
    530             535             540

Leu Asn Thr Ser Phe Asn Val Met Gly Lys Pro Ile Ala His Ser Val
545             550             555             560

Glu Asp Ala Leu Ser Ile Phe Phe Thr Ser Gly Leu Asp Ala Met Phe
            565             570             575

Ile Asp Asp Val Leu Ile Glu Lys
            580
```

```
<210>  41
<211>  88
<212>  PRT
<213>  Xanthomonas albilineans

<400>  41
```

```
Met Arg Thr Ser Lys Phe Asn Glu Thr Gln Ile Ile Ala Thr Leu Lys
1               5               10              15

Gln Ala Asp Ala Gly Val Pro Val Lys Asp Ile Cys Arg Gln Val Gly
            20              25              30

Ile Ser Thr Ala Thr Tyr Tyr Gln Trp Lys Ser Lys Tyr Val Ala Ser
            35              40              45

Glu Met Pro Ser Ser Arg His Thr Ser Leu Thr Trp Arg Pro Pro Ser
    50              55              60

Thr Cys Phe Ser Val Ala Thr Ile Trp Leu Ser Val Asn Leu Leu Leu
65              70              75              80

Arg Ile Val Gly Arg Leu Gly Gly
            85
```

```
<210>  42
<211>  716
<212>  PRT
<213>  Xanthomonas albilineans

<400>  42
```

```
Met Arg Cys Leu Ile Ile Asn Asn Tyr Asp Ser Phe Thr Trp Asn Leu
1               5               10              15

Ala Asp Tyr Val Ala Gln Ile Phe Gly Glu Asp Pro Leu Val Val His
            20              25              30
```

Asn Asp Glu Tyr Ser Trp His Glu Leu Lys Asp Arg Gly Gly Phe Ser
        35   40   45

Ser Ile Ile Val Ser Pro Gly Pro Gly Ser Val Val Asn Glu Ala Asp
    50   55   60

Phe His Ile Ser Leu Gln Ala Leu Glu Gln Asn Glu Phe Pro Val Leu
65   70   75   80

Gly Val Cys Leu Gly Phe Gln Gly Leu Ala His Val Tyr Gly Gly Arg
            85   90   95

Ile Leu His Ala Pro Val Pro Phe His Gly Arg Arg Ser Thr Val Ile
            100   105   110

Asn Thr Gly Asp Gly Leu Phe Glu Gly Ile Pro Gln Arg Phe Glu Ala
        115   120   125

Val Arg Tyr His Ser Leu Met Val Cys Gln Gln Ser Leu Pro Pro Val
    130   135   140

Leu Lys Val Thr Ala Arg Thr Asp Cys Gly Val Val Met Gly Leu Gln
145   150   155   160

His Val Gln His Pro Lys Trp Gly Val Gln Phe His Pro Glu Ser Ile
            165   170   175

Leu Thr Glu His Gly Lys Arg Ile Val Ala Asn Phe Ala Lys Leu Ala
        180   185   190

Ala Arg His Ser Ala Pro Leu Leu Ala Gly Ser Glu Gln Ala Gly Lys
        195   200   205

Val Leu Ser Val Cys Ala Pro Glu Met Val Thr Pro Arg Val Arg Arg
    210   215   220

Met Leu Ser Arg Lys Ile Lys Cys Arg Trp Gln Ala Glu Asp Val Phe
225   230   235   240

Leu Ala Leu Phe Ala Asp Glu Lys His Cys Phe Trp Leu Asp Ser Gln
            245   250   255

Leu Val Cys Ser Pro Met Ala Arg Tyr Ser Phe Met Gly Ala Val Asn
            260   265   270

Glu Ser Glu Val Val Arg His Cys Val Arg Pro Gly Ser Met Val Gln
    275   280   285

Glu Ala Gly Glu Arg Phe Leu Ala Glu Met Asp Arg Ala Leu Gln Ser
    290   295   300

Val Leu Thr Glu Asp Val Ala Glu Arg Pro Pro Phe Ala Phe Arg Gly
305   310   315   320

Gly Tyr Val Gly Tyr Met Ser Tyr Glu Met Lys Ser Val Phe Gly Ala
            325   330   335

Pro Ala Ser His Ala Asn Ala Ile Pro Asp Ala Leu Trp Met Arg Val
            340   345   350

Glu Arg Phe Val Ala Phe Asp His Ala Thr Glu Glu Val Trp Leu Leu

```
              355                        360                        365
Ala Leu Ala Asp Thr Glu Asp Leu Ser Ala Leu Ala Trp Leu Asp Ala
    370                 375                 380
Ile Glu Gln Arg Ile His Ala Ile Gly Gln Ala Ala Pro Ala Cys Ile
385                 390                 395                     400
Ser Leu Gly Leu Arg Ser Met Glu Ile Glu Leu Asn His Gly Arg Arg
                405                 410                     415
Gly Tyr Leu Glu Ala Ile Glu Arg Cys Lys Gln Arg Ile Val Asp Gly
            420                 425                 430
Glu Ser Tyr Glu Ile Cys Leu Thr Asp Leu Phe Ser Phe Gln Ala Glu
            435                 440                 445
Leu Asp Pro Leu Met Leu Tyr Arg Tyr Met Arg Arg Gly Asn Pro Ala
    450                 455                 460
Pro Phe Gly Ala Tyr Leu Arg Asn Gly Ser Asp Cys Ile Leu Ser Thr
465                 470                 475                     480
Ser Pro Glu Arg Phe Leu Glu Val Asp Gly His Gly Thr Ile Gln Thr
                485                 490                     495
Lys Pro Ile Lys Gly Thr Cys Arg Arg Ala Glu Asp Pro Gln Leu Asp
            500                 505                 510
Arg Asn Leu Ala Met Arg Leu Ala Ala Ser Glu Lys Asp Arg Ala Glu
            515                 520                 525
Asn Leu Met Ile Val Asp Leu Met Arg Asn Asp Leu Ser Arg Val Ala
    530                 535                 540
Val Pro Gly Ser Val Thr Val Pro Lys Leu Met Asp Ile Glu Ser Tyr
545                 550                 555                     560
Lys Thr Val His Gln Met Val Ser Thr Val Glu Ala Arg Leu Arg Ala
                565                 570                     575
Asp Cys Ser Leu Val Asp Leu Leu Lys Ala Val Phe Pro Gly Gly Ser
            580                 585                 590
Ile Thr Gly Ala Pro Lys Leu Arg Ser Met Glu Ile Ile Asp Gly Leu
            595                 600                 605
Glu Asn Ala Pro Arg Gly Val Tyr Cys Gly Ser Ile Gly Tyr Leu Gly
    610                 615                 620
Tyr Asn Cys Val Ala Asp Leu Asn Ile Ala Ile Arg Ser Leu Ser Tyr
625                 630                 635                     640
Asp Gly Gln Glu Ile Arg Phe Gly Ala Gly Gly Ala Ile Thr Phe Leu
                645                 650                     655
Ser Asp Pro Gln Asp Glu Phe Asp Glu Val Leu Leu Lys Ala Glu Ala
            660                 665                 670
Ile Leu Lys Pro Ile Trp His Tyr Leu His Ala Pro Asn Thr Pro Leu
            675                 680                 685
```

```
His Tyr Glu Leu Arg Glu Asp Lys Leu Leu Leu Ala Glu His Cys Val
    690             695             700
```

```
Ser Glu Met Pro Ala Arg Gln Ala Phe Ile Glu Pro
705             710             715
```

<210> 43
<211> 137
<212> PRT
<213> Xanthomonas albilineans

<400> 43

```
Met Arg Pro Pro Arg Leu Arg Ala Asn Gln Asp Gly Leu Leu Met Asp
1               5               10              15
```

```
Thr Ala Gly Arg Val Val Glu Gly Cys Thr Ser Asn Leu Phe Leu Val
            20              25              30
```

```
Glu Asn Gly His Leu Val Thr Pro Asp Leu Gly Val Ala Gly Val Ser
        35              40              45
```

```
Gly Ile Met Arg Gly Arg Val Ile Glu Tyr Gly Arg Gln His Gly Leu
    50              55              60
Ala Cys Ala Val Lys His Val Tyr Pro Asp Gln Leu Val Arg Ala Gln
65              70              75              80
```

```
Glu Val Phe Leu Thr Asn Ala Val Phe Gly Ile Leu Leu Val Arg Ser
            85              90              95
```

```
Ile Asp Ala His Ser Tyr Arg Ile Asp Pro Val Thr Leu Arg Leu Leu
        100             105             110
```

```
Asp Ala Leu Cys Gln Gly Val Tyr Phe Thr Glu Arg Ser Leu His Gln
        115             120             125
```

```
Val Ser Thr His Ala Gly Gln Asp Pro
    130             135
```

<210> 44
<211> 200
<212> PRT
<213> Xanthomonas albilineans

<400> 44

```
Met Pro Ala Lys Thr Leu Glu Ser Lys Asp Tyr Cys Gly Glu Ser Phe
1               5               10              15
```

```
Val Ser Glu Asp Arg Ser Gly Gln Ser Leu Glu Ser Ile Arg Phe Glu
            20              25              30
```

```
Asp Cys Thr Phe Arg Gln Cys Asn Phe Thr Glu Ala Glu Leu Asn Arg
        35              40              45
```

```
Cys Lys Phe Arg Glu Cys Glu Phe Val Asp Cys Asn Leu Ser Leu Ile
    50              55              60
```

```
Ser Ile Pro Gln Thr Ser Phe Met Glu Val Arg Phe Val Asp Cys Lys
```

```
65                          70                         75                         80

Met Leu Gly Val Asn Trp Thr Ser Ala Gln Trp Pro Ser Val Lys Met
                85                  90                      95

Glu Gly Ala Leu Ser Phe Glu Arg Cys Ile Leu Asn Asp Ser Leu Phe
            100                 105              110

Tyr Gly Leu Tyr Leu Ala Gly Val Lys Met Val Glu Cys Arg Ile His
            115                 120              125

Asp Ala Asn Phe Thr Glu Ala Asp Cys Glu Asp Ala Asp Phe Thr Gln
        130             135             140

Ser Asp Leu Lys Gly Ser Thr Phe His Asn Thr Lys Leu Thr Gly Ala
145                 150             155                 160

Ser Phe Ile Asp Ala Val Asn Tyr His Ile Asp Ile Phe His Asn Asp
            165             170             175

Ile Lys Arg Ala Arg Phe Ser Leu Pro Glu Ala Ala Ser Leu Leu Asn
            180             185             190

Ser Leu Asp Ile Glu Leu Ser Asp
        195             200


<210>   45
<211>   202
<212>   PRT
<213>   Xanthomonas albilineans

<400>   45

Met His Pro Pro Ser Pro Leu Asn Thr Gln Gln Lys Asp Trp Leu Thr
1               5                   10                  15

Arg Gly Gly Ser Leu Thr Ala His Leu Arg Leu Leu Gly Gln Val Gln
            20                  25                  30

Val Gln Val Gln Arg Glu His Lys Ser Met Ala Trp Leu Asp Glu Tyr
        35                  40                  45

Arg Val Leu Gly Leu Ser Arg Cys Leu Leu Val Trp Val Arg Glu Val
    50                  55                  60

Val Leu Val Val Asp Ala Lys Pro Tyr Val Tyr Ala Arg Ser Leu Thr
65                  70                  75                  80

Pro Leu Thr Ala Ser Tyr Asn Ala Trp Gln Ala Val Arg Ser Ile Gly
                85                  90                  95

Ser Arg Pro Leu Ala Asp Leu Leu Phe Arg Asp Arg Ser Val Leu Arg
            100             105             110

Ser Ala Leu Ala Ser Arg Arg Ile Thr Ala Gln His Pro Leu His Arg
            115             120             125

Arg Ala Cys Asn Phe Val Ala Gln Ser His Ala Thr Gln Ala Leu Leu
        130             135             140
```

Ala Arg Arg Ser Val Phe Thr Arg Gln Gly Ala Pro Leu Leu Ile Thr
145   150   155   160

Glu Cys Met Leu Pro Ala Leu Trp Ala Thr Leu Glu Pro Val Ala Ala
            165   170   175

Pro Arg Gln Ala Ser Leu Ser Ala Asp Gly Pro Cys Arg His Ser Ala
        180   185   190

Gln Ile Val Ser Pro Glu Ser Met Leu Glu
        195   200

<210> 46
<211> 278
<212> PRT
<213> Xanthomonas albilineans

<400> 46

Met Pro Asn Ala Val Pro Met Gln Gly Ala Arg Gly Leu Pro Gln Pro
1   5   10   15

Gln Ala Met Asn Pro Gly Leu Pro Ser Val Gly Gly Leu Ser Ala Gly
            20   25   30

Gln Pro Leu Gln Leu Ser Leu Ala Pro Glu Leu Gln Ala Ala Ala Arg
        35   40   45

Ser Ala His Arg His Leu Leu Asp Asp Gly Thr Ala Leu Tyr Leu Leu
        50   55   60

Ala Phe Asp Thr Ala Gln Phe Asp Pro Gly Ala Phe Ala Ala Met Ala
65   70   75   80

Ile Ala Arg Pro Asp Ser Ile Ala Arg Ser Val Arg Lys Arg Gln Ala
            85   90   95

Glu Phe Leu Phe Gly Arg Leu Ala Ala Arg Leu Ala Leu Gln Glu Val
            100   105   110

Leu Gly Pro Ala Gln Ala Gln Ala Asp Ile Ala Ile Gly Ala Thr Arg
        115   120   125

Ala Pro Cys Trp Pro Ala Gly Ser Leu Gly Ser Ile Ser His Cys Glu
        130   135   140

Asp Tyr Ala Ala Ala Ile Ala Met Ala Ala Gly Thr Arg His Gly Val
145   150   155   160

Gly Ile Asp Leu Glu Arg Pro Ile Thr Pro Ala Ala Arg Ala Ala Leu
            165   170   175

Leu Ser Ile Ala Ile Asp Ala Asp Glu Ala Ala Arg Leu Ala Lys Ala
            180   185   190

Ala Asp Ala Gln Trp Pro Gln Asp Leu Leu Leu Thr Ala Leu Phe Ser
        195   200   205

Ala Lys Glu Ser Leu Phe Lys Ala Ala Tyr Ser Ala Val Gly Arg Tyr
        210   215   220

```
Phe Asp Phe Ser Ala Ala Arg Leu Cys Gly Ile Asp Leu Ala Arg Gln
225             230             235                 240

Cys Leu His Leu Arg Leu Thr Glu Thr Leu Cys Ala Gln Phe Val Ala
                245             250                 255

Gly Gln Val Cys Glu Val Gly Phe Ala Arg Leu Pro Pro Asp Leu Val
            260             265             270

Leu Thr His Tyr Ala Trp
        275
```

```
<210>    47
<211>    634
<212>    PRT
<213>    Xanthomonas albilineans

<400>    47
```

```
Met Ser Val Glu Thr Gln Lys Glu Thr Leu Gly Phe Gln Thr Glu Val
1               5               10              15

Lys Gln Leu Leu Gln Leu Met Ile His Ser Leu Tyr Ser Asn Lys Glu
            20              25              30

Ile Phe Leu Arg Glu Leu Ile Ser Asn Ala Ser Asp Ala Ala Asp Lys
        35              40              45

Leu Arg Phe Glu Ala Leu Val Lys Pro Glu Leu Leu Asp Gly Asp Ala
    50              55              60

Gln Leu Arg Ile Arg Ile Gly Phe Asp Lys Asp Ala Gly Thr Val Thr
65              70              75              80

Ile Asp Asp Asn Gly Ile Gly Met Ser Arg Glu Glu Ile Val Ala His
            85              90              95

Leu Gly Thr Ile Ala Lys Ser Gly Thr Ser Asp Phe Leu Lys His Leu
            100             105             110

Ser Gly Asp Gln Lys Lys Asp Ser His Leu Ile Gly Gln Phe Gly Val
            115             120             125

Gly Phe Tyr Ser Ala Phe Ile Val Ala Asp Gln Val Asp Val Tyr Ser
    130             135             140

Arg Arg Ala Gly Leu Pro Ala Ser Asp Gly Val His Trp Ser Ser Arg
145             150             155             160

Gly Glu Gly Glu Phe Glu Val Ala Thr Ile Asp Lys Pro Glu Arg Gly
            165             170             175

Thr Arg Ile Val Leu His Leu Lys Glu Glu Glu Lys Gly Phe Ala Asp
            180             185             190

Gly Trp Lys Leu Arg Ser Ile Val Arg Lys Tyr Ser Asp His Ile Ala
        195             200             205

Leu Pro Ile Glu Leu Ile Lys Glu His Tyr Gly Glu Asp Lys Asp Lys
```

```
              210                      215                      220
Pro Glu Thr Pro Glu Trp Glu Thr Val Asn Arg Ala Ser Ala Leu Trp
225                 230                 235                     240

Thr Arg Pro Arg Thr Glu Ile Lys Asp Glu Glu Tyr Gln Glu Leu Tyr
                245                 250                     255

Lys His Ile Ala His Asp His Glu Asn Pro Val Ala Trp Ser His Asn
                260                 265                     270

Lys Val Glu Gly Lys Leu Glu Tyr Thr Ser Leu Leu Tyr Leu Pro Gly
            275                 280                     285

Arg Ala Pro Phe Asp Leu Tyr Gln Arg Asp Ala Ser Arg Gly Leu Lys
        290                 295                     300

Leu Tyr Val Gln Arg Val Phe Ile Met Asp Gln Ala Asp Gln Phe Leu
305                 310                 315                     320

Pro Leu Tyr Leu Arg Phe Ile Lys Gly Ile Val Asp Ser Ser Asp Leu
                325                 330                     335

Pro Leu Asn Val Ser Arg Glu Ile Leu Gln Ser Gly Pro Val Ile Asp
                340                 345                     350

Ser Met Lys Ser Ala Leu Thr Lys Arg Ala Leu Asp Met Leu Glu Lys
            355                 360                 365

Leu Ala Lys Asp Asp Pro Glu Arg Tyr Lys Gly Val Trp Lys Asn Phe
        370                 375                 380

Gly Gln Val Leu Lys Glu Gly Pro Ala Gln Asp Phe Gly Asn Arg Glu
385                 390                 395                     400

Lys Ile Ala Gly Leu Leu Arg Phe Ala Ser Thr His Ser Gly Asp Asp
                405                 410                     415

Ala Gln Asn Val Ser Leu Ala Asp Tyr Val Ala Arg Met Lys Asp Gly
                420                 425                     430

Gln Asp Lys Leu Tyr Tyr Leu Thr Gly Glu Ser Tyr Ala Gln Ile Lys
            435                 440                 445

Asp Ser Pro His Leu Glu Val Phe Arg Lys Lys Gly Ile Glu Val Leu
450                 455                 460

Leu Leu Thr Asp Arg Ile Asp Glu Trp Leu Met Ser Tyr Leu Thr Glu
465                 470                 475                     480

Phe Asp Ser Lys Ser Phe Val Asp Val Ala Arg Gly Asp Leu Asp Leu
            485                 490                     495

Gly Lys Leu Asp Ser Glu Glu Glu Lys Gln Ala Gln Glu Glu Ala Ala
            500                 505                     510

Lys Ala Lys Gln Gly Leu Ala Glu Arg Ile Gln Gln Val Leu Lys Asp
            515                 520                     525

Glu Val Ala Glu Val Arg Val Ser His Arg Leu Thr Asp Ser Pro Ala
        530                 535                 540
```

```
Ile Leu Ala Ile Gly Gln Gly Asp Met Gly Leu Gln Met Arg Gln Ile
545             550             555             560

Leu Glu Ala Ser Gly Gln Lys Leu Pro Glu Ser Lys Pro Val Phe Glu
                565             570             575

Phe Asn Pro Ala His Pro Leu Ile Glu Lys Leu Asp Ala Glu Pro Asp
            580             585             590

Val Asp Arg Phe Gly Asp Leu Ala Arg Val Leu Phe Asp Gln Ala Ala
            595             600             605

Leu Ala Ala Gly Asp Ser Leu Lys Asp Pro Ala Ala Tyr Val Arg Arg
    610             615             620

Leu Asn Lys Leu Leu Leu Glu Leu Ser Ala
625             .   630
```

```
<210>   48
<211>   20
<212>   DNA
<213>   Xanthomonas albilineans

<400>   48

gcgtaccgtt gtccagtagg                                          20


<210>   49
<211>   20
<212>   DNA
<213>   Xanthomonas albilineans

<400>   49

gctggaaacc gagaatctga                                          20


<210>   50
<211>   20
<212>   DNA
<213>   Xanthomonas albilineans

<400>   50

gacacgatca gccgctagga                                          20


<210>   51
<211>   20
<212>   DNA
<213>   Xanthomonas albilineans

<400>   51

accagcagtt gggccagcct                                          20


<210>   52
```

```
<211>   19
<212>   DNA
<213>   Xanthomonas albilineans

<400>   52

tgcccacagg ccgtcgagt                                              19
```

```
<210>   53
<211>   20
<212>   DNA
<213>   Xanthomonas albilineans

<400>   53

gcgagaggac aagctgctgc                                             20
```

```
<210>   54
<211>   20
<212>   DNA
<213>   Xanthomonas albilineans

<400>   54

cgttgaggat gcagcgctcg                                             20
```